ARIZONA DEPARTMENT OF TRANSPORTATION

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EVALUATION OF CONCRETE PAVEMENTS IN THE PHOENIX URBAN CORRIDOR

Volume II
Appendices

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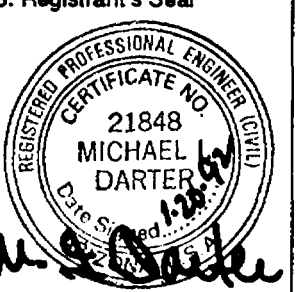
16. Abstract

Arizona has been building portland cement concrete (PCC) pavements since the 1950's and now has approximately 400 lane miles of PCC pavements. Overall, these pavements have performed exceptionally well and have carried large traffic volumes. However, these pavements have experienced a range of distresses, including faulting, cracking, spalling, and, consequently, roughness. Since ADOT is considering the construction of approximately 230 lane miles of PCC in the next 20 years, a comprehensive evaluation of the 36 concrete pavements in the Phoenix Urban Corridor was conducted to identify the performance trends of the different designs and to aid in the recommendation of appropriate rehabilitation strategies. The field testing and evaluation consisted of condition surveys, drainage survey, nondestructive deflection testing, coring and subsurface boring investigations, a roughness survey, and Weigh-in-Motion (WIM) studies on selected sites.

This volume provides project documentation to the main report. The appendices of this volume summarize the performance data for the sections; provide strip maps taken from the distress surveys; describe the creation and use of the project data base; summarize the results from the WIM studies, furnish rehabilitation selection guidelines; and provide an overview of rehabilitation methods.

This volume is the second in a series of two. Volume I provides a general performance summary of the sections, evaluates pertinent concrete design models, and provides recommended design and rehabilitation alternatives.

23. Registrant's Seal



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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

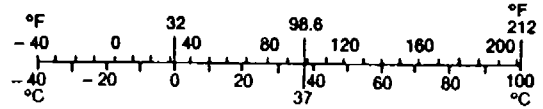
Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	25.4	millimetres	mm
ft	feet	0.305	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km
AREA				
in^2	square inches	645.2	millimetres squared	mm^2
ft^2	square feet	0.093	metres squared	m^2
yd^2	square yards	0.836	metres squared	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	kilometres squared	km^2
VOLUME				
fl oz	fluid ounces	29.57	millilitres	mL
gal	gallons	3.785	litres	L
ft^3	cubic feet	0.028	metres cubed	m^3
yd^3	cubic yards	0.765	metres cubed	m^3

NOTE: Volumes greater than 1000 L shall be shown in m^3.

MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5(F-32)/9	Celcius temperature	°C

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi
AREA				
mm^2	millimetres squared	0.0016	square inches	in^2
m^2	metres squared	10.764	square feet	ft^2
ha	hectares	2.47	acres	ac
km^2	kilometres squared	0.386	square miles	mi^2
VOLUME				
mL	millilitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m^3	metres cubed	35.315	cubic feet	ft^3
m^3	metres cubed	1.308	cubic yards	yd^3
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams	1.102	short tons (2000 lb)	T
TEMPERATURE (exact)				
°C	Celcius temperature	1.8C + 32	Fahrenheit temperature	°F



* SI is the symbol for the International System of Measurement

(Revised April 1989)

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APPENDIX A

PROJECT SUMMARY TABLES

APPENDIX A PROJECT SUMMARY TABLES

This appendix provides the summary tables that contain all of the design, construction, maintenance, rehabilitation, traffic, drainage, and performance data for the sections included in the study. A key to those summary tables follows to assist in their interpretation. Each category and columnar heading is described, a key to the abbreviations used in the tables are presented, and, where appropriate, sources of information used to complete the tables are provided. The tables themselves are presented at the end of this appendix.

1. DESIGN DATA

The following is an explanation of the headings for the design tables. This includes the slab design data (table A-1); base and subbase design data (table A-2); subgrade and outer shoulder design data (table A-3); and the pavement joint information (table A-4).

SLAB DESIGN DATA

HIGHWAY NUMBER. Projects representing the three major thoroughfares of Phoenix were included in study. The highway number of each section is given in this column (either S.R. 360, I-10, or I-17).

PROJECT SECTION ID. To aid in the overall organization of this project, each individual section was marked with a section identification. Those sections originally included in this study begin with an indicator of the highway number and then a sequential number assigned to a specific section (e.g., 17-01 indicates section 1 on I-17). Those Arizona sections included from the FHWA study are characterized by the State's abbreviation and a number. Each different design within that project was further identified by a number sequentially assigned as a suffix, thereby differentiating between sections.

YEAR BUILT. This heading provides the year that each individual pavement was constructed and opened to traffic.

SURVEY DIRECTION. The direction of the surveyed section is provided in this column—either WB (westbound), EB (eastbound), SB (southbound), or NB (northbound).

NUMBER OF LANES IN SURVEY DIRECTION. The total number of lanes in the survey direction only (one direction) is provided in this column. This value ranges from 2 to 4.

PRIMARY LANE IN SURVEY. The primary lane that was surveyed is given in this column. ADOT convention is that lane 3 is the outer (truck) lane, lane 2 is the center lane, and lane 1 is the innermost lane.

START MP. The starting milepost of each section is provided in this column.

SECTION LENGTH, FT. The total length of the surveyed section, in feet, is provided in this column. The length was typically 1000 ft, although this may be more or less depending upon the characteristics of the pavement.

PAVEMENT TYPE. Three types of pavements are included in this study. Most of the sections are of the Jointed Plain Concrete Pavement (JPCP) variety, although there were several Continuously Reinforced Concrete Pavement (CRCP) sections and several prestressed (PRES) sections. There were no Jointed Reinforced Concrete Pavement (JRCP) sections.

PCC SURFACE

Thickness, in

The plans thickness is obtained from plans, drawings, or reports provided by the State or reporting agency. Field thicknesses come from the coring performed as part of the field survey. The core thickness reported represents one to two center slab cores. This is not a valid sample size and it is not intended to suggest that the actual thickness of the slab is that obtained from the cores. The design thickness has been used in backcalculation procedures and ESAL calculations. for some projects, the core thickness was unavailable and an entry of N/A is made.

Pavement Slab Length, ft

The transverse joint spacing of the section is entered in this column. Joint spacings are either uniform or random. Random joint spacings are a sequence of four slab lengths that are repeated in a consistent pattern. All slab lengths are reported to the nearest foot.

% Steel

The CRCP and the prestressed sections contain a certain amount of steel whose purpose is to keep transverse shrinkage cracks tight. The percent steel is calculated as follows:

$$\% \text{ STEEL} = \frac{A_s * n}{t * 12} \qquad \text{(A-1)}$$

where:

A_s = cross-sectional area of the longitudinal steel, in
n = number of pieces of longitudinal steel per foot
t = thickness of the slab, in

This actually gives a value of percent steel/foot, which is very close to the percent steel calculated on the slab's entire cross section.

Skewed Joints, Yes/No

Skewed joints are transverse joints which are not constructed perpendicular to the longitudinal centerline. The standard practice is to have an offset of 2 ft in 12 and to construct the skew counterclockwise. Sections with skewed joints are identified by a "Y".

Load Transfer Devices (LTD's)

The most commonly encountered LTD's are dowels. If dowels are used, the dowel diameter, in inches, is shown. If no LTD is used, a diameter of 0.0 is entered. Dowels are often placed with a coating to inhibit corrosion and to facilitate movement. The coatings most commonly used include paint and/or grease (P/G), epoxy, a plastic coating, stainless steel (ST STL), and liquid asphalt (LA). If there was no dowel, a series of three dashes is entered.

E, ksi

Young's modulus of elasticity (E) is estimated using backcalculation procedures. The FWD deflection basin and radius of relative stiffness are used to characterize the strength of the surface in terms of the dynamic modulus of elasticity. This figure is rounded to the nearest 10 ksi. The dynamic E is not the same as the E calculated with other correlations.

M_r, psi

The modulus of rupture reported here is an estimate of the value obtained from third point loading. It is calculated from the correlation $M_r = 1.02*F_t + 210$, where F_t is the split tensile strength from the cores collected during the field survey. This correlation is developed in work by Foxworthy.[A-1]

BASE AND SUBBASE DESIGN DATA

The first nine columns are repeats of categories discussed above and are included on each table for clarity of presentation. The base data begins in column 10.

BASE

Type

The base layer is the layer in the pavement system directly beneath the surface. Many different materials are used in the construction of base layers. The following list includes the abbreviations used for both base and subbase materials:

AGG:	gravel or crushed stone
CTB:	cement-treated base
LCB:	Lean concrete base (also econocrete)
NONE:	no base; slab is constructed directly on the subgrade

Thickness

The plans thickness is obtained from plans, drawings, or reports provided by the State or reporting agency. Field thicknesses are measured from the coring performed as part of the field survey. The values represent one to two center slab cores. As with the slab core measurements, this is not a valid sample size and its inclusion here is not intended to imply that the actual thickness of the base is that obtained from the cores.

If there is not base layer, the design and core thicknesses are entered as three dashes. As is noted above, some core thicknesses were not available and are noted as N/A.

E, ksi

Young's modulus of elasticity (E) is estimated using backcalculation procedures. The FWD deflection basin and radius of relative stiffness are used to characterize the strength of the surface in terms of the dynamic modulus of elasticity. This figure is rounded to the nearest 10 ksi. The dynamic E is not the same as the E calculated with other correlations.

Estimated Permeability

The coefficient of permeability, k, is reported in units of ft/hr. The procedure used in this study to estimate the permeability of

porous base and subbase layers follows that outlined in reference A-2. The permeability equation in that reference has been worked into a computerized solution, DRAINIT.[A-3] The inputs to this solution include the effective grain size, D_{10}, the specific gravity, G_s, and the percent passing the No. 200 sieve. The types of fines and the general material type are also needed. All of the material properties were obtained from the coring and boring performed as part of the field surveys, with the exception of G_s. In some cases, that is available from project records. Where it is not available it is estimated. The estimated permeability of stabilized, nondraining layers is assumed to be zero. If there is no base, the estimated permeability is recorded as three dashes. If insufficient material was obtained to estimate the permeability, an entry of N/A is made.

K_{eff} (Dynamic)

The effective dynamic modulus of subgrade reaction on the base is backcalculated using a closed-form numerical procedure which evaluates the stiffness of the surface and subsurface layers in terms of dynamic loading. The FWD deflection basin and radius of relative stiffness are used to determine the dynamic k-value on top of the base. The dynamic k-value is approximately 50 percent higher than the static k-value due to the stress state induced by the dynamic load.

SUBBASE

The subbase is the layer of the pavement system located beneath the base. The descriptions of the categories and the entries are identical to those used in the section on bases.

SUBGRADE AND SHOULDER DESIGN DATA

There is some repetition of data for clarity. The subgrade information begins in column 10.

SUBGRADE

AASHTO Subgrade Soil Type

The subgrade is the lowest layer of the pavement system. It is the existing material upon which the pavement system is constructed. The pavement may be constructed on the existing soil or it may rest on fill material. The AASHTO soil type is determined in accordance with AASHTO M-145. Results were

obtained from the boring operations, construction reports, or county soil surveys.

% Passing # 200

The percent of the subgrade material passing the number 200 sieve is listed in this column.

Plasticity Index

The plasticity index is provided in this column. The plasticity index is defined as the difference between the liquid limit and the plastic limit, and therefore indicates the range of moisture content over which the soil is in a plastic condition.

E, ksi

Young's modulus of elasticity (E) is estimated using backcalculation procedures. The FWD deflection basin and radius of relative stiffness are used to characterize the strength of the surface in terms of the dynamic modulus of elasticity. This figure is rounded to the nearest 10 ksi. The dynamic E is not the same as the E calculated with other correlations.

Estimated Permeability

The coefficient of permeability, k, is reported in units of ft/hr. Typically, however, this value was not available for the subgrade material.

SHOULDER

Shoulder Included in Survey

Along with the condition survey, a survey of the shoulder was also conducted. The lane that was being surveyed determined which shoulder was included in the survey for that section. This will typically be the outer shoulder, but in some instances was the inner shoulder.

Type

Two surface types were observed on the outer shoulders in this project. They are asphalt concrete (AC) and portland cement concrete (PCC). In most cases, the PCC shoulders are tied to the mainline pavement with regularly spaced rebar.

Thickness

The thickness of the surface and base courses are provided for the outer shoulder. In certain cases, the cross section of the surface layer tapers from the pavement edge to the outer edge of the shoulder. Then the thickness provided is an average of the thickest and thinnest part of the cross section and is noted by an asterisk.

PAVEMENT JOINT DATA

Again there is some repetition of column headings for sake of clarity. These have been described elsewhere.

TRANSVERSE JOINT.

Dowel Diameter, in

This category has been previously described elsewhere.

Calculated Average Joint Opening, in

Joint movement is a function of slab length, temperature change, the thermal coefficient of expansion of the slab material, and the friction between the slab and the base. The calculated mean joint opening can be estimated from the following equation:

$$\Delta L = C * L * \alpha * \Delta T \qquad \text{(A-2)}$$

where:

- ΔL = mean joint opening, inches
- C = an adjustment factor for base friction; 0.80 for granular material and 0.65 for stabilized material
- L = slab length, inches
- α = thermal coefficient of expansion of PCC, $5.5 * 10^{-6}$ in/in/°F
- ΔT = design temperature change

Skewed Joints, Y/N

This category has been previously described.

Joint Sealant Shape Factor

The joint shape factor is the ratio of the joint reservoir width to the joint reservoir depth. This is based on the design and not on actual field measurements. If the joint was not sealed at construction and remained unsealed, the shape factor is 0.0. Note

that the joint reservoir may be different than the initial sawcut of the transverse joint.

Joint Sealant

Type

The types of sealants used in the transverse joints and their abbreviations are presented below:

PREF:	preformed elastomeric compound
HP:	hot-poured bituminous material
AC:	asphalt cement
SIL:	silicone sealant
RA:	rubberized asphalt

Age

The age of the sealant at the time of the survey is recorded. This is not always the same as the age of the pavement, as some sections have been resealed.

Condition

The joint sealant condition was evaluated by severity during the field survey. The condition reported is the average condition, or the condition of the sealant in the majority of the joints. Only the outer lane is included in this rating. The following rating scheme is used:

SEVERITY LEVEL	CONDITION
NONE	EXCELLENT
LOW	GOOD
MODERATE	FAIR
HIGH	POOR

DEPTH OF LONGITUDINAL JOINT, IN. The depth of the longitudinal joint between lanes is obtained from construction records. It was not measured in the field. If the lanes were placed at separate times and no joint was sawed or formed by an insert, this is recorded as N/A.

2. MONITORING DATA

This section describes selected monitoring information. Such items as deflection data (table A-5), shoulder information (table A-6), drainage information (table A-7), and traffic information (table A-8) are included here.

DEFLECTION DATA — OUTER LANE

DEFLECTION, MILS.

Mid-Slab Deflections

A Falling Weight Deflectometer (FWD) was used to measure pavement deflections under a dynamic load. A series of four loads in a range from 7 kips to 17 kips were applied to the center of the slab and the resultant deflections were recorded by a set of sensors in thousandths of an inch. The deflections at the load closest to 9 kips were then "normalized" to 9 kips by plotting load vs. deflection and obtaining a deflection for each test. The results presented here for each section are the normalized high and low deflections recorded from the load plate sensor (D_o), and the average of all of the mid-slab deflections for the section. The area of the deflection basin is also given.

Loaded Corner

FWD testing was performed at the corners of the slabs. Data collected at this location is used to determine load transfer at the joint and to determine the existence of voids under the slab corners. The loaded corner deflection is the deflection recorded by the sensor directly under the load plate (D_o). The value presented here is an average of all of the loaded corner deflections from the section.

Unloaded Corner

When deflection testing is performed in the corner of the slab, a sensor is placed opposite the loaded corner, on the unloaded corner. The deflections recorded from this sensor (D_1 or D_6) represent the unloaded corner deflections. This value is also an average of all of the unloaded corner deflections from the section.

ADJUSTED PERCENT LOAD TRANSFER EFFICIENCY. The general definition of load transfer (percent) is the deflection of the unloaded corner divided by the deflection of the loaded corner multiplied by 100. The adjusted load transfer is a corrected value to take into account the fact that the slab deflects under loading; the natural bending of the slab

under load must be accounted for to more accurately model the deflection of the corner. The correction factor used is the average of D_o/D_1 for the section. The load transfer is multiplied by the correction factor to obtain the adjusted load transfer efficiency.

PERCENT LOAD TRANSFER ACROSS SHOULDER. The load transfer across the shoulder can be calculated from deflections measured across this joint, if the shoulder is PCC. The method of calculation is the same as that described above. If the shoulder is AC or AGG, the entry in this column is N/A.

AVERAGE NDT TEST TEMPERATURE, °F. FWD test results are somewhat sensitive to the temperature of the slab being tested. The average ambient temperature over the course of the testing is presented here.

PERCENT CORNERS WITH VOIDS. Using procedures developed under NCHRP 1-21, deflection measurements obtained at the slab corners can be used to identify the presence of voids under those corners.[A-4] The percent of the corners tested which had voids is presented here.

SHOULDER INFORMATION

Again, there is a repeat of the first 9 columnar headings. The shoulder information begins in column 10.

SHOULDER INCLUDED IN SURVEY. The shoulder included in the field survey of that section (outer or inner) is listed in this column.

TYPE-THICKNESS, IN.

Surface

The layer type and its thickness are given for the surface. This information is obtained from plans, specifications or other sources made available by the States. The surface types are asphalt concrete (AC) and portland cement concrete (PCC). Shoulder types preceded by a plus sign (+) indicate an average thickness.

Base

The base type and its thickness are given. The base types are the same as previously described. An average is given when the shoulder thickness changes from the pavement edge to the outer edge.

OVERALL SHOULDER CONDITION. The shoulder condition rating is a subjective evaluation made at the time of the field survey. The ratings used were excellent, good, fair, and poor. They are based on the amount of distress recorded on the shoulder.

SHOULDER JOINT SEAL CONDITION. As part of the drainage survey, the condition of the lane-shoulder joint sealant was evaluated for each section. The severity levels for the observed sealant distress were NONE, LOW, MODERATE, and HIGH. These correspond to an overall shoulder joint seal condition of excellent, good, fair, and poor.

DRAINAGE INFORMATION

Drainage information begins in column 10.

PERMEABILITY, FT/HR.

Base

The calculation of the estimated permeability, k, of the base has been previously described.

Subbase

The calculation of the estimated permeability, k, of the subbase has been previously described.

Subgrade

The determination of the estimated permeability, k, of the subgrade is presented when made available from other sources.

C_d. This parameter, the AASHTO drainage coefficient, is an overall estimate of the drainability of the entire section or its ability to remove water from the pavement structure. It is based on a number of factors, including environment, layer permeabilities, time of saturation, longitudinal and transverse slopes, and material characteristics. For rigid pavements, C_d ranges from 0.7 (indicating very poor drainage) to 1.25 (indicating very good drainage).

DOWELS, Y/N. This is the same as information presented earlier. It is included again as an aid to understanding the other data on this page.

DEPTH TO DITCH, FT. The depth from the pavement edge to the bottom of the ditch line was estimated during the field survey. This number is only an estimate. If a value of 0 is entered, there is no drainage curbs and gutters or storm drains.

PRIMARY LANE, AVERAGE

Average Transverse Slope, Percent.

The average transverse slope of the outer lane of the pavement was measured at the beginning, middle, and end of the section, using a bubble level with a slope indicator. The three values are averaged and converted from in/ft to a percentage. A negative value indicates that the outer lane sloped down toward the outer shoulder when facing in the direction of traffic.

Average Longitudinal Grade, Percent.

The average longitudinal grade was also measured three times and the readings were averaged. A negative slope indicates that the pavement slopes down in the direction of the survey. In some cases the slope changed signs during the section. In those instances, the three readings are still averaged.

TRAFFIC INFORMATION

ORIGINAL DESIGN TRAFFIC

Very little original design traffic was available. The design traffic that was available is presented here.

ESAL's

This is the number of 18-kip Equivalent Single-Axle Load (ESAL) applications used for the design of the pavement.

Average Daily Traffic (ADT)

This is the two-way ADT used for the design of the pavement.

Percent Trucks

This is the percent of heavy trucks used for the design of the pavement.

Age at Survey. The age of the pavement at the time of the survey is the number of years passed from the time of construction through 1988.

1988 ESTIMATED.

ADT

This is the 1988 two-way ADT obtained for each section.

Percent Trucks

This is the 1988 truck percentage (excluding panels and pickups) obtained for each section.

LANE #3

Lane #3 is the outermost traffic lane.

1988 ESAL Estimated From ADT and Percent Trucks

Using ADT, percent truck information, and truck weight information, the ESAL applications for 1988 were calculated and entered here.

Estimated ESAL's To Date

Using historical ADT, percent truck information, and truck weight information, the cumulative ESAL applications (from the date of opening to traffic through 1988) were calculated and entered here.

LANE #2

Lane #2 is the lane adjacent to the outer lane.

1988 ESAL Estimated From ADT and Percent Trucks

This is the same as described above.

Estimated ESAL's To Date

This is the same as described above.

LANE #1

Lane #1 is the innermost (median-side) traffic lane.

1988 ESAL Estimated From ADT and Percent Trucks

This is the same as described above.

Estimated ESAL's To Date

This is the same as described above.

3. PERFORMANCE DATA

Key elements of each pavement section's performance are summarized for the outer lane (lane 3), the middle or center lane (lane 2), and the inner lane (lane 1). This information is presented in tables A-9 through A-11, respectively. This data was

collected during the field surveys conducted during the spring of 1988. It is not possible to include all of the performance data in these tables; that information is available in the computerized database. Instead, key performance indicators are provided. The distress identification, rating of severity levels, and recording of quantities were all performed in accordance with guidelines presented in reference A-5. Sections with more than two lanes in the direction of the survey were only visually surveyed for condition and distress in all lanes other than the outer lane due to safety considerations, unless that other lane was the one of primary interest.

PERFORMANCE DATA - LANE 3

DOWEL DIAMETER, IN. This category of data is described elsewhere and is included here for reference only.

AVERAGE PRESENT SERVICEABILITY RATING. The PSR was recorded by two people while running the Mays Roughness survey. The PSR is a rating assigned to the pavement by the survey crew after driving over the pavement at the posted speed limit. The rating scale ranges from 0 (considered an "impassable" pavement) to 5 (considered a "perfect" pavement). The PSR is a highly subjective rating given the small sample size and is included for reference purposes only.

MAYS ROUGHNESS, IN/MI. A 1985 Buick Le Sabre equipped with a Mays Roughness Meter was used to perform a roughness survey on every section of the project. The vehicle, loaded to a fairly constant weight, made two passes over each section at 50 mi/hr. The roughness readings from both passes were averaged to obtain the value presented in this table.

AVERAGE TRANSVERSE FAULTING, IN. Hand measurements of the faulting of each transverse joint were recorded in the outer wheel path of each lane, for sections with fewer than three lanes in the direction of the survey, and in the outer lane only, for sections with three or more lanes in the direction of the survey. The average of the faulting measurements is given in this column.

DETERIORATED TRANSVERSE CRACKS/MI. The occurrence of transverse cracks and their severity was recorded during the field survey. For JPCP pavements, transverse cracks of low, moderate, and high severity are counted together and summed as deteriorated cracks per mile.

LONGITUDINAL CRACKING, LINEAR FT/MI. Longitudinal cracks of all severities were measured and recorded. The totals are

summarized as a number of linear feet of longitudinal cracking per mile of pavement.

PUMPING. The entire section is given a rating for pumping based on the presence of the highest severity level of pumping noted during the field survey.

PERCENT OF TRANSVERSE JOINTS SPALLED. Three severity levels of transverse joint spalling are recognized and were recorded. The percentage of joints falling in the low-, medium-, and high-severity joint spalling are shown here.

SPALL REPAIR AT JOINTS. A good deal of partial-depth spall repairs had been performed at the transverse joints. This column summarizes the type of repair material placed within each sections and the percentage of joints to which the repair material had been applied.

PERFORMANCE DATA - LANE 2

The column headings for this table are the same as the ones described above.

PERFORMANCE DATA - LANE 1

The column headings for this table are the same as the ones described above.

4. SUMMARY TABLES

The tables summarizing all of the design and construction data for the study sections follow the list of references.

5. REFERENCES

A-1. Foxworthy, P. T., "Concepts for the Development of a Nondestructive Testing and Evaluation System for Rigid Airfield Pavements," Ph.D. Dissertation, University of Illinois, June 1985.

A-2. Moulton, L. K, "Highway Subdrainage Design," FHWA-TS-80-224, Federal Highway Administration, August 1980.

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Table A-1. Slab design data for study sections.

Highway Number	Project Section ID	Year Built	Survey Dir.	Number of Lanes Survey Dir.	Primary Lane in Survey	Start MP	Section Length, FT	Pvt. Type	PCC SURFACE								
									THICKNESS, IN		Pavement Slab Length, FT	% Steel	Skewed Joints Y/N	LTD's		E, KSI from FWD	Mr,PSI from cores
									Plans	Field				Dia, IN	Coating		
RT 360	AZ 1-1	1972	WB	3	3	1.19	1063	JPCP	9.0	N/A	13-15-17-15	---	Y	0.00	---	3140	687
	AZ 1-2	1975	WB	3	3	4.34	1061	JPCP	13.0	N/A	13-15-17-15	---	Y	0.00	---	3440	649
	AZ 1-4	1979	WB	3	3	7.42	1051	JPCP	13.0	13.0	13-15-17-15	---	Y	0.00	---	3490	702
	AZ 1-5	1979	WB	3	3	6.50	1059	JPCP	11.0	11.0	13-15-17-15	---	Y	0.00	---	3290	761
	AZ 1-6	1981	WB	2	3	9.40	1059	JPCP	9.0	N/A	13-15-17-15	---	Y	0.00	---	3090	853
	AZ 1-7	1981	WB	2	3	10.38	1058	JPCP	9.0	N/A	13-15-17-15	---	Y	0.00	---	3090	868
	360-01	1985	EB	2	3	15.34	1065	JPCP	9.0	8.9	13-15-17-15	---	Y	0.00	---	6730	863
	360-02	1985	EB	2	3	13.50	1069	JPCP	9.0	9.2	13-15-17-15	---	Y	0.00	---	5490	899
	360-03	1983	EB	2	3	11.80	1054	JPCP	9.0	9.5	13-15-17-15	---	Y	0.00	---	5930	950
	360-04	1979	WB	3	3	6.31	868	JPCP	11.0	10.9	13-15-17-15	---	Y	0.00	---	3590	878
	360-05	1977	EB	3	3, 2	4.27	3508	PRES	6.0	N/A	402	0.11	N/A	0.00	---	5500	N/A
	360-06	1977	EB	3	3, 2	4.85	1426	PRES	6.0	N/A	402	0.11	N/A	0.00	---	5390	N/A
	360-07	1984	EB	3	1	4.31	1200	CRCP	9.0	N/A	N/A	0.65	N/A	0.00	---	4890	N/A
	360-08	1984	EB	3	1	4.70	1200	CRCP	9.0	N/A	N/A	0.65	N/A	0.00	---	4590	N/A
	360-09	1975	WB	3	3	3.54	904	JPCP	13.0	11.7	13-15-17-15	---	Y	0.00	---	3010	868
	360-10A	1977	EB	3	3, 2	5.01	207	PRES	6.0	N/A	207	0.11	N/A	0.00	---	5810	N/A
	360-10B	1977	EB	3	3, 2	5.07	829	PRES	6.0	N/A	502	0.11	N/A	0.00	---	5660	N/A
I-10	AZ 2	1985	EB	4	3	141.19	1041	JPCP	10.0	N/A	13-15-17-15	---	Y	1.25	EPOXY	5560	725
	10-01	1968	EB	3	1	152.82	1059	JPCP	9.0	9.6	13-15-17-15	---	Y	0.00	---	5560	899
	10-02	1968	EB	4	1	153.14	1006	JPCP	9.0	8.7	13-15-17-15	---	Y	0.00	---	3910	878
	10-03	1968	WB	3	3	153.87	1048	JPCP	9.0	9.0	13-15-17-15	---	Y	0.00	---	4930	965
	10-04	1986	WB	4	3	140.34	1065	JPCP	10.0	11.9	13-15-17-15	---	Y	1.25	EPOXY	6360	776
	10-05	1985	EB	4	3	136.68	1054	JPCP	10.0	9.0	13-15-17-15	---	Y	1.25	EPOXY	4360	N/A
	10-06	1984	WB	3	3	130.88	1065	JPCP	10.0	9.7	13-15-17-15	---	Y	1.25	EPOXY	5690	837
	10-07	1984	WB	3	3	130.50	1065	JPCP	10.0	9.7	13-15-17-15	---	Y	1.25	EPOXY	4040	776
I-17	17-01	1961	SB	3	1	205.50	1065	JPCP	9.0	9.3	15.0	---	N	0.00	---	5080	797
	17-02	1961	NB	3	1	201.65	1055	JPCP	9.0	6.9	15.0	---	N	0.00	---	5450	842
	17-03	1965	SB	3	3	211.89	1061	JPCP	9.0	9.1	15.0	---	Y	0.00	---	6010	934
	17-04	1965	SB	3	3	208.20	1070	JPCP	9.0	9.3	15.0	---	Y	0.00	---	6110	1103
	17-05	1965	NB	3	3	210.40	871	JPCP	9.0	9.7	15.0	---	Y	0.00	---	6890	995
	17-06	1963	NB	3	3	198.70	1065	JPCP	9.0	9.1	15.0	---	N	0.00	---	5690	848
	17-10	1961	NB	3	3	205.20	886	JPCP	9.0	9.8	15.0	---	N	0.00	---	3740	638
	17-11	1965	NB	3	3	208.70	1065	JPCP	9.0	9.1	15.0	---	Y	0.00	---	6530	904

Table A-2. Base and subbase design data for study sections.

Highway Number	Project Section ID	Year Built	Survey Dim.	Number of Lanes Survey Dim.	Primary Lane in Survey	Start MP	Section Length, FT	Pvt. Type	BASE						SUBBASE				
									Type	THICKNESS, IN		E, KSI from FWD	Estimated Perm., FT/HR	Keff, (Dyn.) PCI	Type	THICKNESS, IN		E, KSI from FWD	Estimated Perm., FT/HR
										Plans	Field					Plans	Field		
RT 360	AZ 1-1	1972	WB	3	3	1.19	1063	JPCP	CTB	6.0	N/A	---	---	546	AGG	4.0	N/A	---	.06
	AZ 1-2	1975	WB	3	3	4.34	1061	JPCP	NONE	---	---	---	---	492	NONE	---	---	---	---
	AZ 1-4	1979	WB	3	3	7.42	1051	JPCP	NONE	---	---	---	---	344	NONE	---	---	---	---
	AZ 1-5	1979	WB	3	3	6.50	1059	JPCP	NONE	---	---	---	---	439	NONE	---	---	---	---
	AZ 1-6	1981	WB	2	3	9.40	1059	JPCP	LCB	4.0	N/A	---	---	621	NONE	---	---	---	---
	AZ 1-7	1981	WB	2	3	10.38	1058	JPCP	LCB	4.0	N/A	---	---	584	NONE	---	---	---	---
	360-01	1985	EB	2	3	15.34	1065	JPCP	LCB	4.0	4.5	---	---	278	NONE	---	---	---	---
	360-02	1985	EB	2	3	13.50	1069	JPCP	LCB	4.0	4.2	---	---	390	NONE	---	---	---	---
	360-03	1983	EB	2	3	11.80	1054	JPCP	LCB	4.0	3.6	---	---	251	NONE	---	---	---	---
	360-04	1979	WB	3	3	6.31	868	JPCP	NONE	---	---	---	---	448	NONE	---	---	---	---
	360-05	1977	EB	3	3, 2	4.27	3508	PRES	LCB	4.0	N/A	---	---	271	NONE	---	---	---	---
	360-06	1977	EB	3	3, 2	4.85	1426	PRES	LCB	4.0	N/A	---	---	211	NONE	---	---	---	---
	360-07	1984	EB	3	1	4.31	1200	CRCP	AGG	4.0	N/A	---	---	311	NONE	---	---	---	---
	360-08	1984	EB	3	1	4.70	1200	CRCP	AGG	4.0	N/A	---	---	335	NONE	---	---	---	---
	360-09	1975	WB	3	3	3.54	904	JPCP	NONE	---	---	---	---	408	NONE	---	---	---	---
	360-10A	1977	EB	3	3, 2	5.01	207	PRES	LCB	4.0	N/A	---	---	252	NONE	---	---	---	---
	360-10B	1977	EB	3	3, 2	5.07	829	PRES	LCB	4.0	N/A	---	---	261	NONE	---	---	---	---
I-10	AZ 2	1985	EB	4	3	141.19	1041	JPCP	LCB	5.0	N/A	---	---	174	NONE	---	---	---	---
	10-01	1968	EB	3	1	152.82	1059	JPCP	AGG	4.0	4.4	---	.16	189	AGG	5.0	N/A	---	.24
	10-02	1968	EB	4	1	153.14	1006	JPCP	AGG	4.0	4.5	---	.19	207	AGG	5.0	4.5	---	.27
	10-03	1968	WB	3	3	153.87	1048	JPCP	AGG	4.0	5.0	---	.16	312	AGG	5.0	4.0	---	.17
	10-04	1986	WB	4	3	140.34	1065	JPCP	LCB	5.0	5.3	---	---	217	NONE	---	---	---	---
	10-05	1985	EB	4	3	136.68	1054	JPCP	LCB	5.0	5.7	---	---	284	NONE	---	---	---	---
	10-06	1984	WB	3	3	130.88	1065	JPCP	LCB	5.0	5.3	---	---	258	NONE	---	---	---	---
	10-07	1984	WB	3	3	130.50	1065	JPCP	LCB	5.0	4.3	---	---	261	NONE	---	---	---	---
I-17	17-01	1961	SB	3	1	205.50	1065	JPCP	AGG	3.0	3.0	---	.08	215	AGG	6.0	???	---	---
	17-02	1961	NB	3	1	201.65	1055	JPCP	AGG	3.0	3.0	---	.68	174	AGG	6.0	2.4	---	1.0
	17-03	1965	SB	3	3	211.89	1061	JPCP	AGG	3.0	3.0	---	.04	123	AGG	6.0	4.0	---	.03
	17-04	1965	SB	3	3	208.20	1070	JPCP	AGG	4.0	4.0	---	.06	205	AGG	6.0	1.9	---	.09
	17-05	1965	NB	3	3	210.40	871	JPCP	AGG	4.0	4.0	---	.03	141	AGG	6.0	5.5	---	.03
	17-06	1963	NB	3	3	198.70	1065	JPCP	AGG	3.0	3.0	---	.05	359	AGG	6.0	2.5	---	---
	17-10	1961	NB	3	3	205.20	886	JPCP	AGG	4.0	4.0	---	.19	260	AGG	6.0	1.5	---	.13
	17-11	1965	NB	3	3	208.70	1065	JPCP	AGG	4.0	4.4	---	.16	105	AGG	6.0	N/A	---	.11

Table A-3. Subgrade and outer shoulder design data for study sections.

Highway Number	Project Section ID	Year Built	Survey Dim.	Number of Lanes Survey Dim.	Primary Lane in Survey	Start MP	Section Length, FT	Pvt. Type	SUBGRADE					SHOULDER			
									AASHTO Soil Type	% Pass # 200	Plast. Index	E, PSI from FWD	Estimated Perm., FT/HR	Shoulder Included In Survey	Type	THICKNESS, IN	
																Surface	Base
RT 360	AZ 1-1	1972	WB	3	3	1.19	1063	JPCP	A-6	N/A	N/A	---	.11	OUTER	AC	3.0	6.0
	AZ 1-2	1975	WB	3	3	4.34	1061	JPCP	A-6	5	21	---	.11	OUTER	PCC	9.0	0.0
	AZ 1-4	1979	WB	3	3	7.42	1051	JPCP	A-6	1	0	---	.11	OUTER	PCC	13.0	0.0
	AZ 1-5	1979	WB	3	3	6.50	1059	JPCP	A-6	4	16	---	.11	OUTER	PCC	11.0	0.0
	AZ 1-6	1981	WB	2	3	9.40	1059	JPCP	A-6	3	0	---	.03	OUTER	PCC	9.0	4.0
	AZ 1-7	1981	WB	2	3	10.38	1058	JPCP	A-6	8	33	---	.03	OUTER	PCC	9.0	4.0
	360-01	1985	EB	2	3	15.34	1065	JPCP	A-7-5	69	35	---	.28	OUTER	PCC	9.0	4.0
	360-02	1985	EB	2	3	13.50	1069	JPCP	A-7-5	69	35	---	.11	OUTER	PCC	9.0	4.0
	360-03	1983	EB	2	3	11.80	1054	JPCP	A-7-6	59	31	---	.11	OUTER	PCC	9.0	4.0
	360-04	1979	WB	3	3	6.31	868	JPCP	A-7-5	46	19	---	.11	OUTER	PCC	11.0	0.0
	360-05	1977	EB	3	3, 2	4.27	3508	PRES	A-7-5	64	17	---	.11	OUTER	PRES	6.0	4.0
	360-06	1977	EB	3	3, 2	4.85	1426	PRES	A-7-5	66	30	---	.11	OUTER	PRES	6.0	4.0
	360-07	1984	EB	3	1	4.31	1200	CRCP	A-2	31	20	---	.11	INNER	CRCP	9.0	4.0
	360-08	1984	EB	3	1	4.70	1200	CRCP	A-2	31	20	---	.11	INNER	CRCP	9.0	4.0
	360-09	1975	WB	3	3	3.54	904	JPCP	A-7-6	64	22	---	.11	OUTER	PCC	13.0	0.0
	360-10A	1977	EB	3	3, 2	5.01	207	PRES	A-7-5	66	24	---	.11	OUTER	PRES	6.0	4.0
	360-10B	1977	EB	3	3, 2	5.07	829	PRES	A-7-5	66	24	---	.11	OUTER	PRES	6.0	4.0
I-10	AZ 2	1985	EB	4	3	141.19	1041	JPCP	A-6	27	12	---	.03	OUTER	PCC	10.0	5.0
	10-01	1968	EB	3	1	152.82	1059	JPCP	A-7-6	44	27	---	---	INNER	AC	3.0	10.0
	10-02	1968	EB	4	1	153.14	1006	JPCP	A-7-6	44	27	---	---	INNER	AC	3.0	10.0
	10-03	1968	WB	3	3	153.87	1048	JPCP	A-7-6	44	27	---	.11	OUTER	AC	3.0	10.0
	10-04	1986	WB	4	3	140.34	1065	JPCP	N/A	N/A	N/A	---	.03	OUTER	PCC	10.0	5.0
	10-05	1985	EB	4	3	136.68	1054	JPCP	A-7	69	14	---	.24	OUTER	PCC	10.0	5.0
	10-06	1984	WB	3	3	130.88	1065	JPCP	A-2-4	27	NP	---	.05	OUTER	PCC	10.0	5.0
	10-07	1984	WB	3	3	130.50	1065	JPCP	A-5	58	7	---	---	OUTER	PCC	10.0	5.0
I-17	17-01	1961	SB	3	1	205.50	1065	JPCP	A-7-6	49	13	---	.11	INNER	PCC	N/A	N/A
	17-02	1961	NB	3	1	201.65	1055	JPCP	A-7-6	53	21	---	.11	INNER	PCC	N/A	N/A
	17-03	1965	SB	3	3	211.89	1061	JPCP	A-4(3)	50	6	---	.11	OUTER	AC	3.0	6.0
	17-04	1965	SB	3	3	208.20	1070	JPCP	A-1-b	7	NP	---	.06	OUTER	AC	3.0	12.0
	17-05	1965	NB	3	3	210.40	871	JPCP	A-4(3)	50	6	---	.11	OUTER	AC	3.0	6.0
	17-06	1963	NB	3	3	198.70	1065	JPCP	N/A	N/A	NP	---	.11	OUTER	AC	3.0	4.0
	17-10	1961	NB	3	3	205.20	886	JPCP	A-6	39	17	---	.07	OUTER	AC	3.0	15.0
	17-11	1965	NB	3	3	208.70	1065	JPCP	A-1-b	7	NP	---	.09	OUTER	AC	3.0	4.0

Table A-4. Pavement joint data for study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	TRANSVERSE JOINT							Depth of Long. Joint Sawcut, IN
							Dowel Dia., IN	Calc Avg Jt Open IN	Skewed Joints Y/N	Sealant Shape Factor	SEALANT Type	SEALANT Age	SEALANT Cond	
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	0.00	0.05	Y	0.67	RA	1	GOOD	---
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	0.00	0.06	Y	0.67	RA	1	EXC	---
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	0.00	0.06	Y	0.67	RA	1	GOOD	---
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	0.00	0.06	Y	0.67	RA	1	FAIR	---
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	0.00	0.05	Y	0.67	RA	1	GOOD	---
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	0.00	0.05	Y	0.67	RA	1	FAIR	---
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	0.00	0.05	Y	0.67	ELAS	3	POOR	---
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	0.00	0.05	Y	0.67	ELAS	3	POOR	---
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	0.00	0.05	Y	0.67	ELAS	5	POOR	---
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	0.00	0.06	Y	0.67	ELAS	9	POOR	---
	360-05	1977	6.0	402	PRES	LCB	0.00	N/A	N/A	N/A	N/A	N/A	N/A	---
	360-06	1977	6.0	402	PRES	LCB	0.00	N/A	N/A	N/A	N/A	N/A	N/A	---
	360-07	1984	9.0	N/A	CRCP	AGG	0.00	N/A	N/A	N/A	N/A	N/A	N/A	---
	360-08	1984	9.0	N/A	CRCP	AGG	0.00	N/A	N/A	N/A	N/A	N/A	N/A	---
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	0.00	0.05	Y	?	ELAS	13	POOR	---
	360-10A	1977	6.0	207	PRES	LCB	0.00	0.61	N/A	N/A	N/A	N/A	N/A	---
	360-10B	1977	6.0	502	PRES	LCB	0.00	1.49	N/A	N/A	N/A	N/A	N/A	---
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	1.25	0.05	Y	0.67	RA	4	GOOD	---
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	0.00	0.06	Y	0.27	ASPH	20?	POOR	---
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	0.00	0.06	Y	0.27	ASPH	20?	POOR	---
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	0.00	0.06	Y	0.27	ASPH	20?	POOR	---
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	1.25	0.05	Y	0.4	ELAS	2	POOR	---
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	1.25	0.05	Y	0.4	ELAS	3	POOR	---
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	1.25	0.05	Y	0.4	ELAS	4	FAIR	---
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	1.25	0.05	Y	0.4	ELAS	4	FAIR	---
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	0.00	0.05	N	0.09	RA	7	POOR	---
	17-02**	1961	9.0	15.0	JPCP	AGG	0.00	0.05	N	0.09	RA	8	POOR	---
	17-03**	1965	9.0	15.0	JPCP	AGG	0.00	0.05	Y	0.09	SIL	1	EXC	---
	17-04**	1965	9.0	15.0	JPCP	AGG	0.00	0.05	Y	0.09	RA	7	POOR	---
	17-05**	1965	9.0	15.0	JPCP	AGG	0.00	0.05	Y	0.09	SIL	1	EXC	---
	17-06	1963	9.0	15.0	JPCP	AGG	0.00	0.05	N	0.09	RA	???	POOR	---
	17-10**	1961	9.0	15.0	JPCP	AGG	0.00	0.05	N	0.09	RA	8	POOR	---
	17-11**	1965	9.0	15.0	JPCP	AGG	0.00	0.05	Y	0.09	RA	8	FAIR	---

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

Table A-5. Deflection data for outer lane of study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	DEFLECTION, mils						Adjusted Percent LTE	Percent LT Across Shldr	Avg. NDT Test Temp, F	Percent Corners with Voids
							Mid-Slab				Loaded Corner	Unloaded Corner				
							High	Low	Ave.	AREA						
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	3.9	2.5	3.3	37.3	8.6	6.3	94	N/A	73	37
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	3.2	2.0	2.7	39.7	4.6	4.0	100	86	68	0
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	3.0	1.8	2.3	39	6.3	5.5	100	79	74	0
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	3.6	2.5	3.2	39.5	12.5	9.9	100	72	71	57
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	2.4	1.8	2.1	40.9	5.0	4.4	100	100	68	0
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	3.2	2.5	2.8	36.3	6.9	5.1	94	95	74	4
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	3.7	2.5	3.2	45.7	21.4	5.1	27	92	58	90
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	3.4	2.3	2.9	45.2	14.3	5.3	42	85	61	60
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	5.4	2.2	3.9	45.7	15.5	7.2	51	89	65	37
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	3.1	2.0	2.6	41.6	11.5	9.8	98	25	65	35
	360-05	1977	6.0	402	PRES	LCB	8.1	5.4	6.7	36	N/A	N/A	N/A	76	82	N/A
	360-06	1977	6.0	402	PRES	LCB	8.9	6.0	7.5	37.4	N/A	N/A	N/A	93	73	N/A
	360-07	1984	9.0	N/A	CRCP	AGG	4.5	2.5	3.4	37.2	N/A	N/A	N/A	100	71	N/A
	360-08	1984	9.0	N/A	CRCP	AGG	4.8	3.0	3.6	40.9	N/A	N/A	N/A	100	67	N/A
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	3.3	2.1	2.6	41.8	4.1	3.7	100	77	66	0
	360-10A	1977	6.0	207	PRES	LCB	8.7	6.8	7.7	39.2	N/A	N/A	N/A	N/A	69	N/A
	360-10B	1977	6.0	502	PRES	LCB	13.8	5.0	8.7	37.2	N/A	N/A	N/A	N/A	68	N/A
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	3.3	2.1	2.6	39.1	11.1	6.1	72	100	80	31
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	4.9	4.4	4.7	44.2	19.3	18.3	100	N/A	64	81
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	5.3	3.6	4.7	43.5	27.6	26.5	100	N/A	59	100
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	4.1	2.7	3.5	42.5	22.0	18.4	94	N/A	59	100
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	4.1	2.2	3.4	43.4	14.1	6.2	49	73	76	71
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	4.0	3.0	3.4	42.8	11.9	9.0	85	84	68	64
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	3.7	2.5	3.2	44.9	8.7	7.1	91	78	70	15
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	4.1	3.3	3.7	43.1	6.7	6.2	100	88	67	10
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	5.0	3.4	4.1	42.8	12.7	12.1	100	78	82	20
	17-02**	1961	9.0	15.0	JPCP	AGG	8.5	4.0	5.3	43.1	10.9	10.1	100	62	79	15
	17-03**	1965	9.0	15.0	JPCP	AGG	6.2	4.8	5.3	45.4	9.7	8.8	97	N/A	78	0
	17-04**	1965	9.0	15.0	JPCP	AGG	7.1	2.6	4.4	44.2	12.3	11.4	100	N/A	85	21
	17-05**	1965	9.0	15.0	JPCP	AGG	6.0	3.7	4.7	45.2	8.7	8.0	99	N/A	74	11
	17-06	1963	9.0	15.0	JPCP	AGG	3.9	2.7	3.2	42.2	13.0	12.3	100	N/A	79	77
	17-10**	1961	9.0	15.0	JPCP	AGG	5.2	3.4	4.6	41.3	13.4	12.5	100	N/A	77	63
	17-11**	1965	9.0	15.0	JPCP	AGG	5.8	4.6	5.3	47.1	13.6	11.4	89	N/A	78	15

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

Table A-6. Outer shoulder information for study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	Shoulder Included in Survey	TYPE-THICKNESS, IN		Overall Shoulder Condition	Shoulder Jt Seal Condition
								Surface	Base		
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	OUTER	AC-3	AGG-6	FAIR	GOOD
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	OUTER	+PCC-9	NONE	EXC	FAIR
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	OUTER	PCC-13	NONE	EXC	FAIR
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	OUTER	PCC-11	NONE	EXC	POOR
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	OUTER	PCC-9	LCB-4	EXC	FAIR
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	OUTER	PCC-9	LCB-4	EXC	POOR
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	OUTER	PCC-9	LCB-4	EXC	POOR
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	OUTER	PCC-9	LCB-4	EXC	POOR
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	OUTER	PCC-9	LCB-4	EXC	POOR
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	OUTER	PCC-11	NONE	EXC	POOR
	360-05	1977	6.0	402	PRES	LCB	OUTER	PRES-6	LCB-4	EXC	N/A
	360-06	1977	6.0	402	PRES	LCB	OUTER	PRES-6	LCB-4	EXC	N/A
	360-07	1984	9.0	N/A	CRCP	AGG	INNER	CRCP-9	LCB-4	EXC	POOR
	360-08	1984	9.0	N/A	CRCP	AGG	INNER	CRCP-9	LCB-4	EXC	POOR
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	OUTER	PCC-13	NONE	EXC	POOR
	360-10A	1977	6.0	207	PRES	LCB	OUTER	PRES-6	LCB-4	EXC	N/A
	360-10B	1977	6.0	502	PRES	LCB	OUTER	PRES-6	LCB-4	EXC	N/A
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	OUTER	PCC-10	LCB-5	EXC	GOOD
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	INNER	AC-3	AGG-10	GOOD	POOR
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	INNER	AC-3	AGG-10	FAIR	POOR
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	OUTER	AC-3	AGG-10	FAIR	POOR
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	OUTER	PCC-10	LCB-5	EXC	POOR
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	OUTER	PCC-10	LCB-5	EXC	POOR
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	OUTER	PCC-10	LCB-5	EXC	POOR
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	OUTER	PCC-10	LCB-5	EXC	N/A
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	INNER	PCC-	---	GOOD	POOR
	17-02**	1961	9.0	15.0	JPCP	AGG	INNER	PCC-	---	GOOD	POOR
	17-03**	1965	9.0	15.0	JPCP	AGG	OUTER	AC-3	AGG-6	GOOD	EXC
	17-04**	1965	9.0	15.0	JPCP	AGG	OUTER	AC-3	AGG-12	FAIR	POOR
	17-05**	1965	9.0	15.0	JPCP	AGG	OUTER	AC-3	AGG-6	GOOD	EXC
	17-06	1963	9.0	15.0	JPCP	AGG	OUTER	AC-3	AGG-4	GOOD	POOR
	17-10**	1961	9.0	15.0	JPCP	AGG	OUTER	AC-3	AGG-15	GOOD	POOR
	17-11**	1965	9.0	15.0	JPCP	AGG	OUTER	AC-3	AGG-4	GOOD	GOOD

*Inner lane (#1) paved 16' wide.

+ Average.

**These sections have been diamond ground.

Table A-7. Drainage information for study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	PERMEABILITY, FT/HR			Cd	Dowels Y/N	Depth to Ditch, FT	PRIMARY LANE, AVG	
							Base	Subbase	Subgrade				Trans. Slope, %	Longit. Grade, %
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	0	.06	.11	1.00	N	2.0	-0.52	0.78
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	N/A	N/A	.11	1.10	N	2.0	-1.04	0.87
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	N/A	N/A	.11	1.10	N	2.0	-2.08	0.00
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	N/A	N/A	.11	1.10	N	2.0	-2.08	1.39
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	0	N/A	.03	1.10	N	2.0	-2.08	0.00
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	0	N/A	.03	1.15	N	2.0	-2.08	0.00
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	0	N/A	.28	1.15	N	N/A	-1.39	-1.04
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	0	N/A	.11	1.15	N	25.0	-1.73	-1.91
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	0	N/A	.11	1.15	N	10.0	-1.56	-1.39
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	N/A	N/A	.11	1.10	N	N/A	-2.60	0.00
	360-05	1977	6.0	402	PRES	LCB	0	N/A	.11	1.15	N	N/A	-1.04	-1.04
	360-06	1977	6.0	402	PRES	LCB	0	N/A	.11	1.15	N	N/A	-1.73	0.35
	360-07	1984	9.0	N/A	CRCP	AGG	0	N/A	.11	N/A	N	N/A	-1.56	-1.39
	360-08	1984	9.0	N/A	CRCP	AGG	0	N/A	.11	N/A	N	N/A	1.39	0.69
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	N/A	N/A	.11	1.10	N	N/A	-1.04	-1.04
	360-10A	1977	6.0	207	PRES	LCB	0	N/A	.11	1.15	N	2.0	-0.13	0.00
	360-10B	1977	6.0	502	PRES	LCB	0	N/A	.11	1.15	N	2.0	-0.13	-0.03
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	0	N/A	.03	1.05	Y	2.0	-3.39	1.04
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	.16	.24	N/A	0.95	N	5.0	1.04	0.00
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	.19	.27	N/A	0.95	N	4.0	0.52	0.35
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	.16	.17	.11	1.00	N	4.0	-1.73	0.17
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	0	N/A	.03	1.15	Y	N/A	-1.39	0.00
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	0	N/A	.24	1.15	Y	N/A	-2.77	0.35
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	0	N/A	.05	1.15	Y	5.0	-1.73	0.52
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	0	N/A	N/A	1.15	Y	5.0	-1.56	0.00
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	.08	N/A	.11	1.00	N	N/A	1.04	0.52
	17-02**	1961	9.0	15.0	JPCP	AGG	.68	1.0	.11	1.15	N	N/A	0.52	0.69
	17-03**	1965	9.0	15.0	JPCP	AGG	.04	.03	.11	0.95	N	N/A	-0.87	0.00
	17-04**	1965	9.0	15.0	JPCP	AGG	.06	.09	.06	1.00	N	N/A	-1.04	-2.00
	17-05**	1965	9.0	15.0	JPCP	AGG	.03	.03	.11	0.90	N	3.0	-0.34	0.00
	17-06	1963	9.0	15.0	JPCP	AGG	.05	N/A	.11	1.00	N	N/A	-1.04	0.52
	17-10**	1961	9.0	15.0	JPCP	AGG	.19	.13	.07	1.05	N	N/A	-1.21	-0.43
	17-11**	1965	9.0	15.0	JPCP	AGG	.16	.11	.09	1.05	N	3.0	-0.52	0.17

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

Table A-8. Traffic information for study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	ORIGINAL DESIGN TRAFFIC ESALs, (million)	ORIGINAL DESIGN TRAFFIC 2-way ADT (thous.)	ORIGINAL DESIGN TRAFFIC % Trucks	ORIGINAL DESIGN TRAFFIC Age at Survey	1988 ESTIMATED 2-way ADT, (thous.)	1988 ESTIMATED % Trks	LANE # 3 *** 1988 ESALs (millions)	LANE # 3 *** Est. ESALs to Date (millions)	LANE # 2 *** 1988 ESALs (millions)	LANE # 2 *** Est. ESALs to Date (millions)	LANE # 1 *** 1988 ESALs (millions)	LANE # 1 *** Est. ESALs to Date (millions)
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB		74		15	110.4	3.1	0.43	3.31	0.03	1.65	0.06	0.17
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE		74		12	118.6	3.1	0.46	2.85	0.33	1.54	0.07	0.21
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE				8	93.7	3.1	0.38	1.99	0.25	0.99	0.05	0.13
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE				8	106.4	3.1	0.42	2.33	0.29	1.23	0.06	0.16
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB				6	97.8	3.1	0.48	1.68	0.23	0.67	N/A	N/A
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB				6	75.4	3.1	0.38	1.27	0.16	0.45	N/A	N/A
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB				3	46.5	3.5	0.28	0.77	0.10	0.25	N/A	N/A
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB				3	46.5	3.5	0.28	0.78	0.10	0.26	N/A	N/A
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB				5	46.5	3.5	0.28	1.09	0.10	0.36	N/A	N/A
	360-04	1979	11.0	13-15-17-15	JPCP	NONE				9	108.8	3.5	0.49	2.64	0.34	1.58	0.07	0.29
	360-05	1977	6.0	402	PRES	LCB				11	110.8	3.5	0.50	3.13	0.35	1.72	0.07	0.21
	360-06	1977	6.0	402	PRES	LCB				11	110.8	3.5	0.50	3.13	0.35	1.72	0.07	0.21
	360-07	1984	9.0	N/A	CRCP	AGG				4	110.8	3.5	—	—	—	—	0.07	0.21
	360-08	1984	9.0	N/A	CRCP	AGG				4	110.8	3.5	—	—	—	—	0.07	0.21
	360-09	1975	13.0	13-15-17-15	JPCP	NONE				13	120.2	3.5	0.66	3.82	0.34	1.75	N/A	N/A
	360-10A	1977	6.0	207	PRES	LCB				11	110.8	3.5	0.50	3.13	0.35	1.72	0.07	0.21
	360-10B	1977	6.0	502	PRES	LCB				11	110.8	3.5	0.50	3.13	0.35	1.72	0.07	0.21
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB		40.5		2	50.0	9.0	0.96	1.68	0.50	0.84	0.12	0.20
	10-01	1968	9.0	13-15-17-15	JPCP	AGG				20	124.9	9.7	2.30	23.14	1.68	14.93	0.35	3.22
	10-02	1968	9.0	13-15-17-15	JPCP	AGG				20	141.1	9.7	2.54	23.76	1.94	15.59	0.39	3.34
	10-03	1968	9.0	13-15-17-15	JPCP	AGG				20	142.8	9.7	2.57	23.76	1.97	15.63	0.40	3.35
	10-04	1986	10.0	13-15-17-15	JPCP	LCB				2	51.0	9.0	0.99	2.82	0.52	1.49	0.06	0.17
	10-05	1985	10.0	13-15-17-15	JPCP	LCB				3	47.0	9.0	0.92	2.37	0.47	1.22	0.06	0.14
	10-06	1984	10.0	13-15-17-15	JPCP	LCB				4	31.2	3.2	2.26	6.85	0.99	2.75	0.25	0.07
	10-07	1984	10.0	13-15-17-15	JPCP	LCB				4	31.2	3.2	2.26	6.85	0.99	2.75	0.25	0.07
I-17	17-01**	1961	9.0	15.0	JPCP	AGG				27	132.1	9.5	1.57	20.27(9.84)	1.17	13.45(7.10)	0.24	2.87(1.47)
	17-02**	1961	9.0	15.0	JPCP	AGG				27	125.9	9.5	1.51	19.41(10.54)	1.10	12.90(7.51)	0.23	2.75(1.56)
	17-03**	1965	9.0	15.0	JPCP	AGG				23	112.3	9.5	1.37	14.47(2.01)	0.96	6.57(1.41)	0.20	0.39
	17-04**	1965	9.0	15.0	JPCP	AGG				23	126.2	9.5	1.51	17.96(9.54)	1.12	11.84(6.80)	0.23	2.53(1.41)
	17-05**	1965	9.0	15.0	JPCP	AGG				23	117.2	9.5	1.42	14.66(2.08)	1.01	6.71(1.49)	0.21	0.41
	17-06	1963	9.0	15.0	JPCP	AGG				25	124.6	9.7	1.52	19.18	1.11	12.36	0.23	2.67
	17-10**	1961	9.0	15.0	JPCP	AGG				27	132.1	9.5	1.57	19.26(10.81)	1.17	12.74(7.78)	0.24	2.72(1.61)
	17-11**	1965	9.0	15.0	JPCP	AGG				23	126.2	9.5	1.51	15.61(3.61)	1.11	9.80(2.64)	0.23	2.14(0.54)

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

*** 1987 data listed for AZ 1-1, 1-2, 1-4, 1-5, 1-6, 1-7, 2. For the I-17 sections, the number in parentheses represents ESALs to date since grinding.

Table A-9. Performance data for lane 3 of study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	Dowel Dia IN	Ave. PSR	May's Rough., IN/MI	Average Trans. Faulting IN	Trans. Cracks/ Mile	Longit. Cracking, LIN FT/MI	Pumping, N/L/M/H	PERCENT JOINTS SPALLED			SPALL REPAIR AT JOINTS	
														L	M	H	Type	% Jts
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	0.00	3.4	114	0.08	0.0	0.0	N	0	22	0	CEM	21
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	0.00	3.8	65	0.01	0.0	0.0	N	1	1	0	BIT	4
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	0.00	3.6	102	0.01	0.0	0.0	N	0	1	0	---	0
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	0.00	3.8	85	0.03	0.0	0.0	N	1	0	0	---	0
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	0.00	3.5	97	0.01	0.0	0.0	N	0	0	0	---	0
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	0.00	3.8	91	0.02	0.0	0.0	N	0	0	0	---	0
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	0.00	4.4	62	0.05	0.0	0.0	N	17	0	0	---	0
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	0.00	4.2	80	0.02	0.0	0.0	N	5	0	0	---	0
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	0.00	4.1	86	0.02	0.0	0.0	N	4	0	0	---	0
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	0.00	4.3	55	0.04	0.0	18.0	N	2	2	0	---	0
	360-05	1977	6.0	402	PRES	LCB	N/A	3.9	88	N/A	---	---	N	N/A	N/A	N/A	EPX/BIT	62
	360-06	1977	6.0	402	PRES	LCB	N/A	3.3	131	N/A	---	---	N	N/A	N/A	N/A	BIT	63
	360-07	1984	9.0	N/A	CRCP	AGG	N/A	---	---	---	---	---	N	---	---	---	---	---
	360-08	1984	9.0	N/A	CRCP	AGG	N/A	---	---	---	---	---	N	---	---	---	---	---
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	0	4.8	64	0.02	35.0	35.0	N	5	0	0	---	0
	360-10A	1977	6.0	207	PRES	LCB	N/A	4.0	---	N/A	---	---	N	N/A	N/A	N/A	N/A	N/A
	360-10B	1977	6.0	502	PRES	LCB	N/A	4.0	---	N/A	---	---	N	N/A	N/A	N/A	---	0
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	1.25	3.6	71	0.01	0.0	0.0	N	3	0	0	BIT	1
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.2	143	N/A	0.0	0.0	N	10	35	0	UPM	32
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.2	155	N/A	0.0	0.0	N	16	22	0	UPM	22
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.8	144	0.03	0.0	0.0	N	27	39	0	UPM	25
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	1.25	4.1	88	0.03	0.0	0.0	N	25	1	0	---	0
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	1.25	4.2	80	0.01	0.0	0.0	N	71	1	0	---	0
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	1.25	4.2	64	0.02	0.0	560.0	N	3	0	0	---	0
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	1.25	4.1	54	0.02	0.0	20.0	N	4	1	0	---	0
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	0.00	3.9	106.0	N/A	0	0	N	3	58	1	UPM/CEM	61
	17-02**	1961	9.0	15.0	JPCP	AGG	0.00	3.9	60.0	N/A	0	0	N	17	43	0	UPM	36
	17-03**	1965	9.0	15.0	JPCP	AGG	0.00	3.9	91.0	0.05	5	134	N	6	64	0	CEM	60
	17-04**	1965	9.0	15.0	JPCP	AGG	0.00	3.7	50.0	0.02	0	15	N	7	17	17	UPM	31
	17-05**	1965	9.0	15.0	JPCP	AGG	0.00	4.1	77.0	0.06	0	0	N	2	5	0	CEM	28
	17-06	1963	9.0	15.0	JPCP	AGG	0.00	2.9	N/A	0.09	0	0	N	14	15	6	UPM	24
	17-10**	1961	9.0	15.0	JPCP	AGG	0.00	4.1	103.0	0.03	0	18	N	10	13	5	UPM	30
	17-11**	1965	9.0	15.0	JPCP	AGG	0.00	4.1	83.0	0.01	0	200	N	10	57	33	CEM	54

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

Table A-10. Performance data for lane 2 of study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	Dowel Dia IN	PSR	Mays Rough. IN/MI	Average Trans. Faulting IN	Trans. Cracks/ Mile	Longit. Cracking, LIN FT/MI	Pumping, N/L/M/H	PERCENT JOINTS SPALLED			SPALL REPAIR AT JOINTS	
														L	M	H	Type	% Jts
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	0.00	3.4	102	N/A	0.0	0.0	N	0	23	0	CEM	29
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	0.00	3.8	76	N/A	0.0	0.0	N	16	8	0	BIT	1
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	0.00	3.4	100	N/A	0.0	0.0	N	0	1	0	---	0
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	0.00	3.8	83	N/A	0.0	0.0	N	1	0	0	---	0
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	0.00	3.8	83	N/A	0.0	0.0	N	0	0	0	---	0
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	0.00	3.8	74	N/A	0.0	0.0	N	0	0	0	---	0
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	0.00	4.5	70	N/A	0.0	0.0	N	13	0	0	---	0
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	0.00	4.3	83	N/A	0.0	0.0	N	0	0	0	---	0
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	0.00	4.2	75	N/A	0.0	55.0	N	3	0	0	---	0
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	0.00	4.1	58	N/A	0.0	0.0	N	0	0	0	---	0
	360-05	1977	6.0	402	PRES	LCB	N/A	4.1	87	N/A	---	---	N	N/A	N/A	N/A	EPX/BIT	67
	360-06	1977	6.0	402	PRES	LCB	N/A	4.0	102	N/A	---	---	N	N/A	N/A	N/A	AC	63
	360-07	1984	9.0	N/A	CRCP	AGG	N/A	---	---	---	---	---	N	---	---	---	---	N/A
	360-08	1984	9.0	N/A	CRCP	AGG	N/A	---	---	---	---	---	N	---	---	---	---	N/A
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	0.00	4.3	74	N/A	6.0	0.0	N	5	0	0	---	0
	360-10A	1977	6.0	207	PRES	LCB	N/A	3.9	N/A	N/A	0.0	---	N	N/A	N/A	N/A	---	N/A
	360-10B	1977	6.0	502	PRES	LCB	N/A	3.9	N/A	N/A	0.0	---	N	N/A	N/A	N/A	---	0
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	1.25	N/A	N/A	N/A	0.0	0.0	N	0	0	0	---	0
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.2	182	N/A	0.0	0.0	N	17	39	0	UPM	37
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.2	174	N/A	0.0	0.0	N	16	25	0	UPM	26
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.8	122	N/A	0.0	0.0	N	15	55	0	UPM	45
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	1.25	4.5	61	N/A	0.0	0.0	N	0	3	0	UPM?	1
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	1.25	3.8	87	N/A	0.0	0.0	N	0	1	0	---	0
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	1.25	4.5	65	N/A	0.0	0.0	N	0	0	0	---	0
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	1.25	4.5	51	N/A	0.0	0.0	N	1	0	0	---	0
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	0.00	3.9	111	N/A	0	0.0	N	15	42	1	UPM/CEM	47
	17-02**	1961	9.0	15.0	JPCP	AGG	0.00	3.6	99	N/A	0	30.0	N	13	42	0	UPM	63
	17-03**	1965	9.0	15.0	JPCP	AGG	0.00	3.9	92	N/A	5	0.0	N	8	64	0	CEM	67
	17-04**	1965	9.0	15.0	JPCP	AGG	0.00	4.1	90	N/A	0	0.0	N	4	28	14	UPM	33
	17-05**	1965	9.0	15.0	JPCP	AGG	0.00	4.2	72	N/A	0	0.0	N	0	0	0	CEM	19
	17-06	1963	9.0	15.0	JPCP	AGG	0.00	2.9	232	N/A	0	0.0	N	11	28	10	UPM	35
	17-10**	1961	9.0	15.0	JPCP	AGG	0.00	4.1	101	N/A	0	0.0	N	8	8	12	UPM	23
	17-11**	1965	9.0	15.0	JPCP	AGG	0.00	4.3	87	N/A	0	0.0	N	3	46	0	CEM	47

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

Table A-11. Performance data for lane 1 of study sections.

Highway Number	Project Section ID	Year Built	Slab T, IN	Pavement Slab Length, FT	Pvt. Type	Base Type	Dowel Dia IN	PSR	May's Rough., IN/MI	Average Trans. Faulting IN	Trans. Cracks/ Mile	Longit. Cracking, LIN FT/MI	Pumping N/L/M/H	PERCENT JOINTS SPALLED			SPALL REPAIR AT JOINTS	
														L	M	H	Type	% Jts
RT 360	AZ 1-1	1972	9.0	13-15-17-15	JPCP	CTB	0.00	3.4	102	N/A	15.0	0.0	N	0	0	0	---	0
	AZ 1-2	1975	13.0	13-15-17-15	JPCP	NONE	0.00	3.8	76	N/A	0.0	0.0	N	0	3	0	---	0
	AZ 1-4	1979	13.0	13-15-17-15	JPCP	NONE	0.00	3.4	100	N/A	0.0	0.0	N	0	0	0	---	0
	AZ 1-5	1979	11.0	13-15-17-15	JPCP	NONE	0.00	3.8	83	N/A	0.0	0.0	N	0	0	0	---	0
	AZ 1-6	1981	9.0	13-15-17-15	JPCP	LCB	0.00	3.8	83	N/A	0.0	0.0	N	N/A	N/A	N/A	N/A	N/A
	AZ 1-7	1981	9.0	13-15-17-15	JPCP	LCB	0.00	3.8	74	N/A	0.0	0.0	N	0	0	0	N/A	N/A
	360-01*	1985	9.0	13-15-17-15	JPCP	LCB	---	---	---	---	---	---	N	---	---	---	---	---
	360-02*	1985	9.0	13-15-17-15	JPCP	LCB	---	---	---	---	---	---	N	---	---	---	---	---
	360-03*	1983	9.0	13-15-17-15	JPCP	LCB	---	---	---	---	---	---	N	---	---	---	---	---
	360-04	1979	11.0	13-15-17-15	JPCP	NONE	0.00	4.1	93	N/A	0.0	0.0	N	2	0	0	---	0
	360-05	1977	6.0	402	PRES	LCB	---	---	---	---	---	---	N	---	---	---	---	---
	360-06	1977	6.0	402	PRES	LCB	---	---	---	---	---	---	N	---	---	---	---	---
	360-07	1984	9.0	N/A	CRCP	AGG	N/A	3.9	86	N/A	---	---	N	N/A	N/A	N/A	N/A	N/A
	360-08	1984	9.0	N/A	CRCP	AGG	N/A	4.0	80	N/A	---	---	N	N/A	N/A	N/A	N/A	N/A
	360-09	1975	13.0	13-15-17-15	JPCP	NONE	0	4.6	80	N/A	0.0	0.0	N	0	0	0	---	0
	360-10A	1977	6.0	207	PRES	LCB	---	---	---	---	---	---	N	---	---	---	---	---
	360-10B	1977	6.0	502	PRES	LCB	---	---	---	---	---	---	N	---	---	---	---	---
I-10	AZ 2	1985	10.0	13-15-17-15	JPCP	LCB	1.25	---	---	---	0.0	0.0	N	0	0	0	---	0
	10-01	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.8	159	0.03	0.0	0.0	N	21	42	0	UPM	33
	10-02	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.7	170	0.06	0.0	0.0	N	23	29	0	UPM	25
	10-03	1968	9.0	13-15-17-15	JPCP	AGG	0.00	3.4	153	N/A	0.0	0.0	N	20	31	0	UPM	21
	10-04	1986	10.0	13-15-17-15	JPCP	LCB	1.25	4.3	59	N/A	0.0	0.0	N	1	0	0	---	0
	10-05	1985	10.0	13-15-17-15	JPCP	LCB	1.25	4.1	108	N/A	0.0	0.0	N	0	0	0	---	0
	10-06	1984	10.0	13-15-17-15	JPCP	LCB	1.25	4.1	64	N/A	0.0	0.0	N	0	0	0	---	0
	10-07	1984	10.0	13-15-17-15	JPCP	LCB	1.25	4.1	65	N/A	0.0	0.0	N	0	0	0	---	0
I-17	17-01**	1961	9.0	15.0	JPCP	AGG	0.00	3.6	95	0.01	0.0	0.0	N	14	17	1	UPM/CEM	24
	17-02**	1961	9.0	15.0	JPCP	AGG	0.00	3.7	95	0.01	0.0	30.0	N	13	42	0	UPM	35
	17-03**	1965	9.0	15.0	JPCP	AGG	0.00	4.2	71	N/A	0.0	0.0	N	0	0	0	---	0
	17-04**	1965	9.0	15.0	JPCP	AGG	0.00	3.9	61	N/A	0.0	0.0	N	10	21	15	UPM	33
	17-05**	1965	9.0	15.0	JPCP	AGG	0.00	4.3	50	N/A	0.0	0.0	N	0	0	0	CEM	1
	17-06	1963	9.0	15.0	JPCP	AGG	0.00	3.1	185	N/A	0.0	0.0	N	4	11	0	UPM	13
	17-10**	1961	9.0	15.0	JPCP	AGG	0.00	4.3	85	N/A	0.0	0.0	N	2	32	0	UPM	33
	17-11**	1965	9.0	15.0	JPCP	AGG	0.00	4.5	44	N/A	0.0	0.0	N	13	32	0	CEM	44

*Inner lane (#1) paved 16' wide.

**These sections have been diamond ground.

APPENDIX B

PROJECT STRIP MAPS

APPENDIX B PROJECT STRIP MAPS

Strip maps of the various projects are included in this appendix. These maps, shown in figures B-1 through B-28, were taken from the original distress survey sheets and are very useful in providing a general indication of the performance of each pavement section. The strip maps were prepared only for those sections that were included in the ADOT study, and not for those that were surveyed as part of the parallel FHWA study. It should be noted that the distress, traffic, and deflection data summarized on the strip maps are for the primary lane of survey for that particular section.

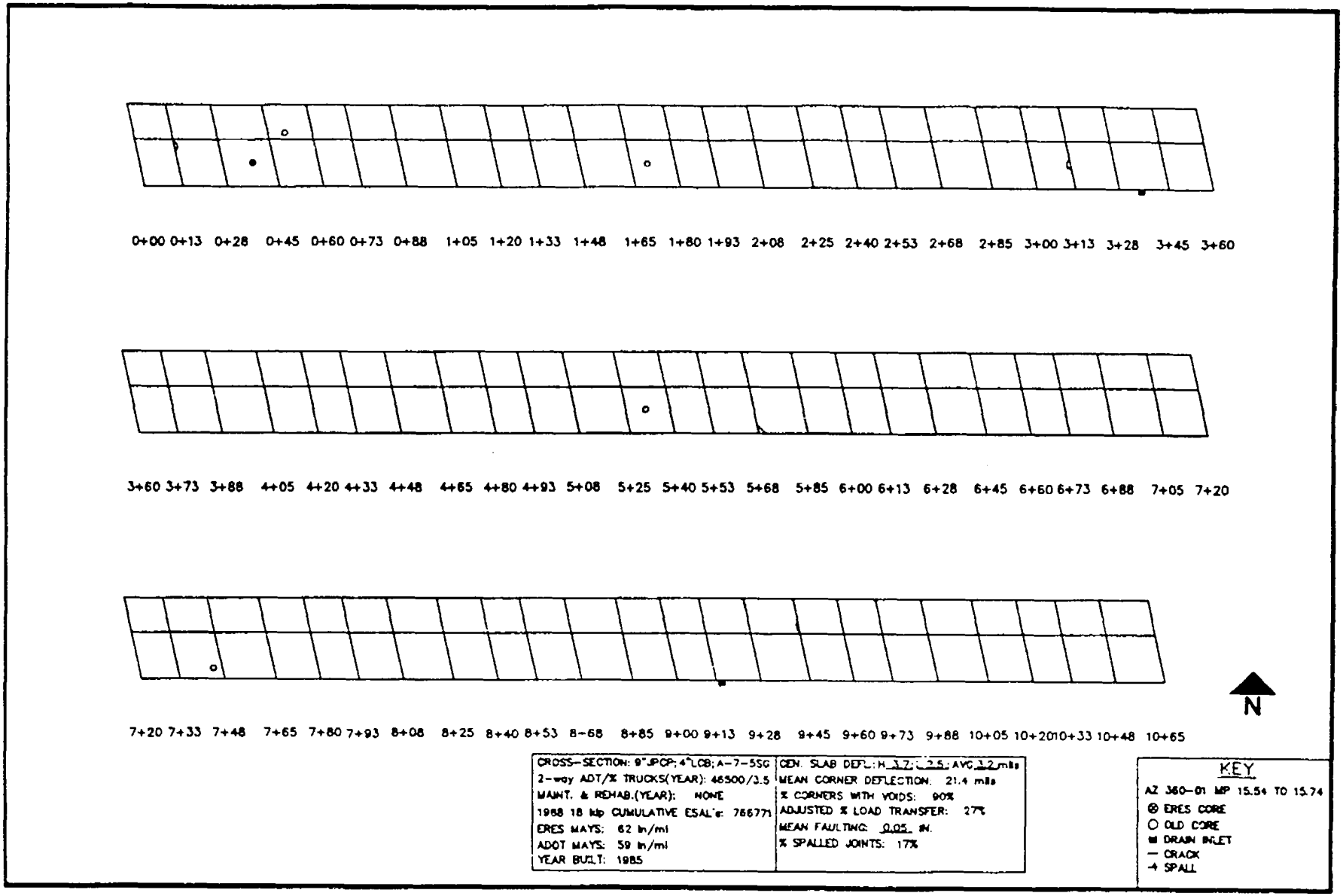
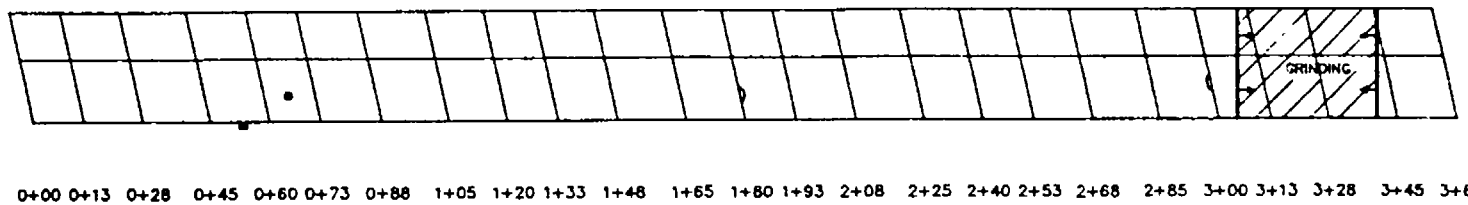
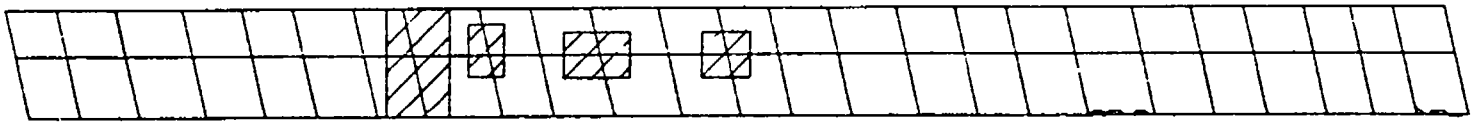


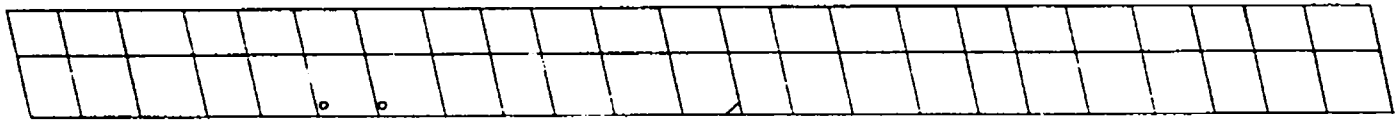
Figure B-1. Project strip map for AZ 360-01.



0+00 0+13 0+28 0+45 0+60 0+73 0+88 1+05 1+20 1+33 1+48 1+65 1+80 1+93 2+08 2+25 2+40 2+53 2+68 2+85 3+00 3+13 3+28 3+45 3+60



3+60 3+73 3+88 4+05 4+20 4+33 4+48 4+65 4+80 4+93 5+08 5+25 5+40 5+53 5+68 5+85 6+00 6+13 6+28 6+45 6+60 6+73 6+88 7+00 7+11 7+24



7+24 7+37 7+52 7+69 7+84 7+97 8+12 8+29 8+44 8+57 8+72 8+89 9+03 9+17 9+32 9+49 9+64 9+77 9+92 10+09 10+23 10+36 10+52 10+69

N

CROSS-SECTION: 9"JPCP; 4"LCB; A-7-5SG	GEN. SLAB DEFL.: H 3.4; L 2.3; AVG 2.9 MILS
2-way ADT/% TRUCKS(YEAR): 46500/3.5	MEAN CORNER DEFLECTION: 14.1 mils
MAINT. & REHAB.(YEAR): NONE	% CORNERS WITH VOIDS: 60%
1988 18 kip CUMULATIVE ESAL's: 783224	ADJUSTED % LOAD TRANSFER: 42%
ERES MAYS: 80 in/mi	MEAN FAULTING: 0.02 IN.
ADOT MAYS: 88 in/mi	% SPALLED JOINTS: 5.5%
YEAR BUILT: 1985	

KEY

AZ 360-02 MP 13.5 TO 13.7

⊗ ERES CORE

○ OLD CORE

■ DRAIN INLET

— CRACK

⊣ SPALL

Figure B-2. Project strip map for AZ 360-02.

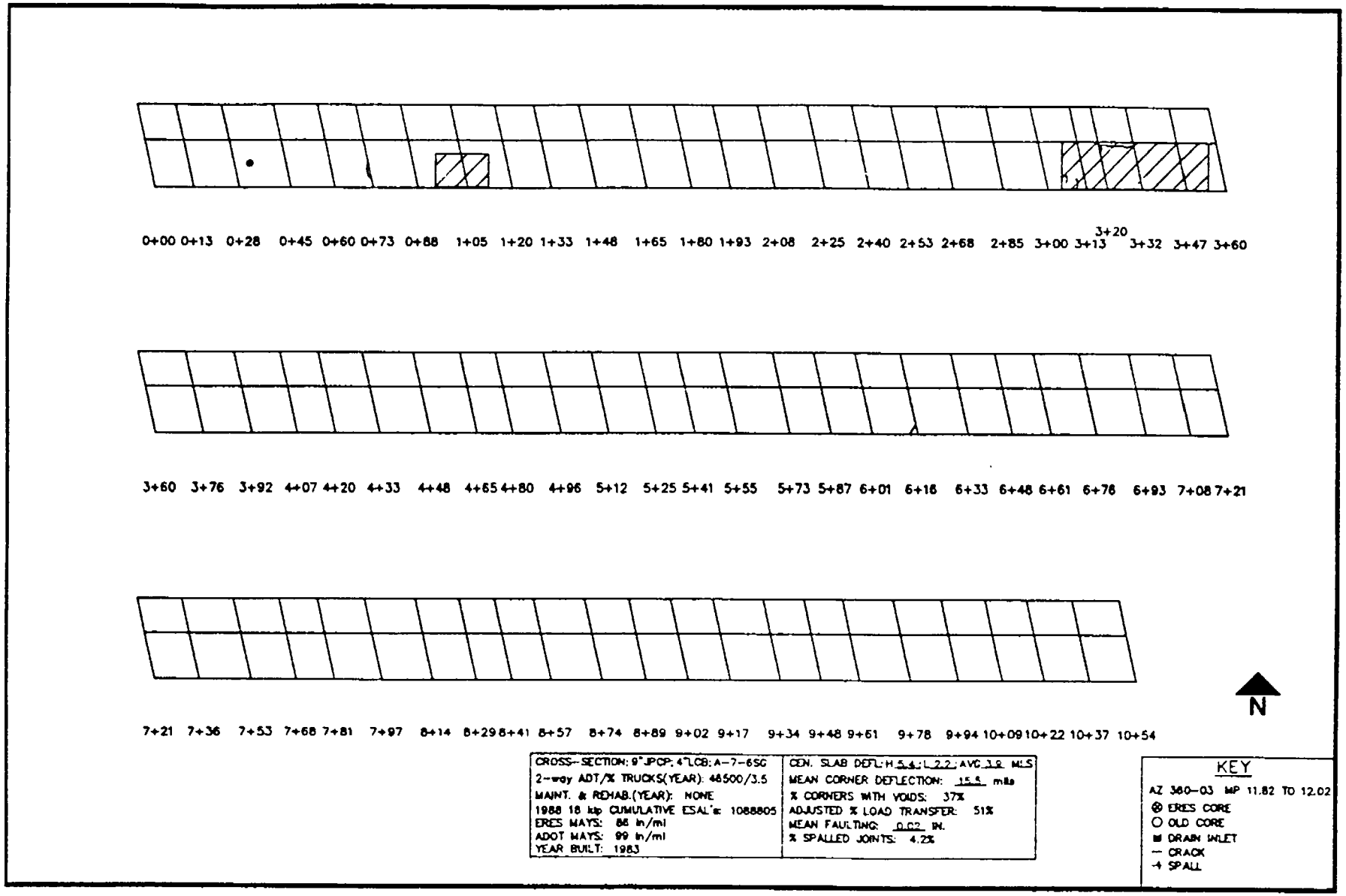


Figure B-3. Project strip map for AZ 360-03.

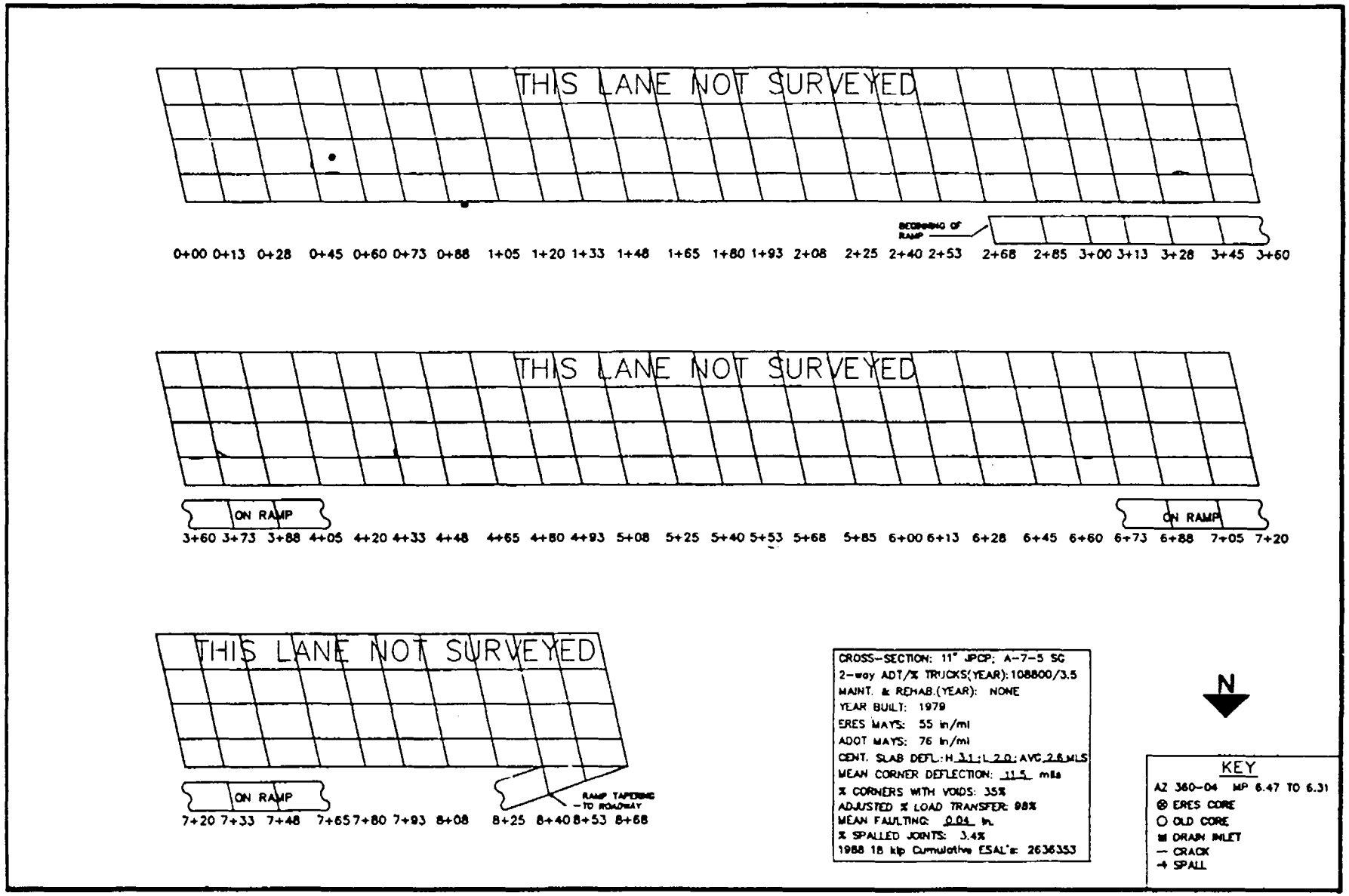


Figure B-4. Project strip map for AZ 360-04.

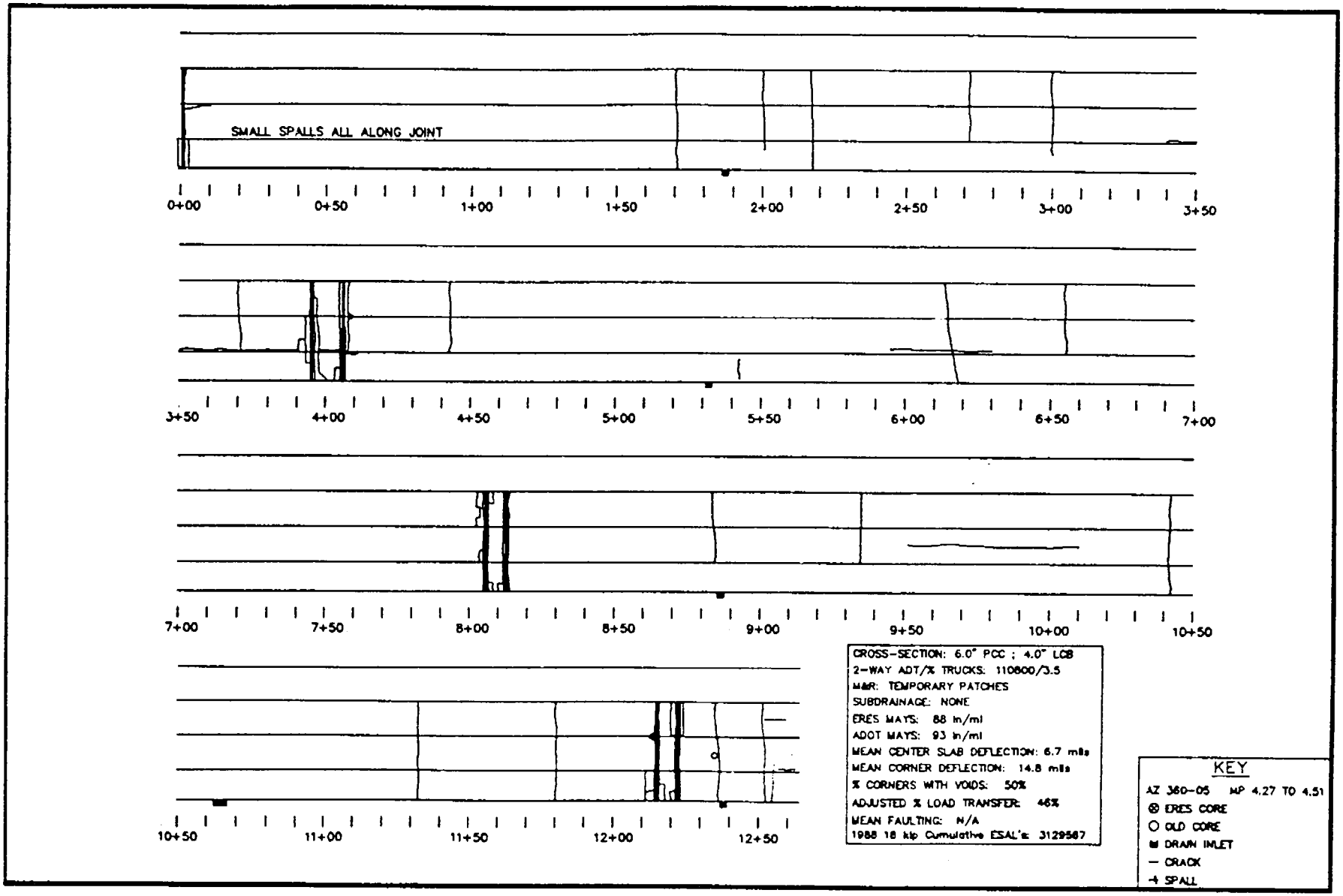


Figure B-5. Project strip map for AZ 360-05.

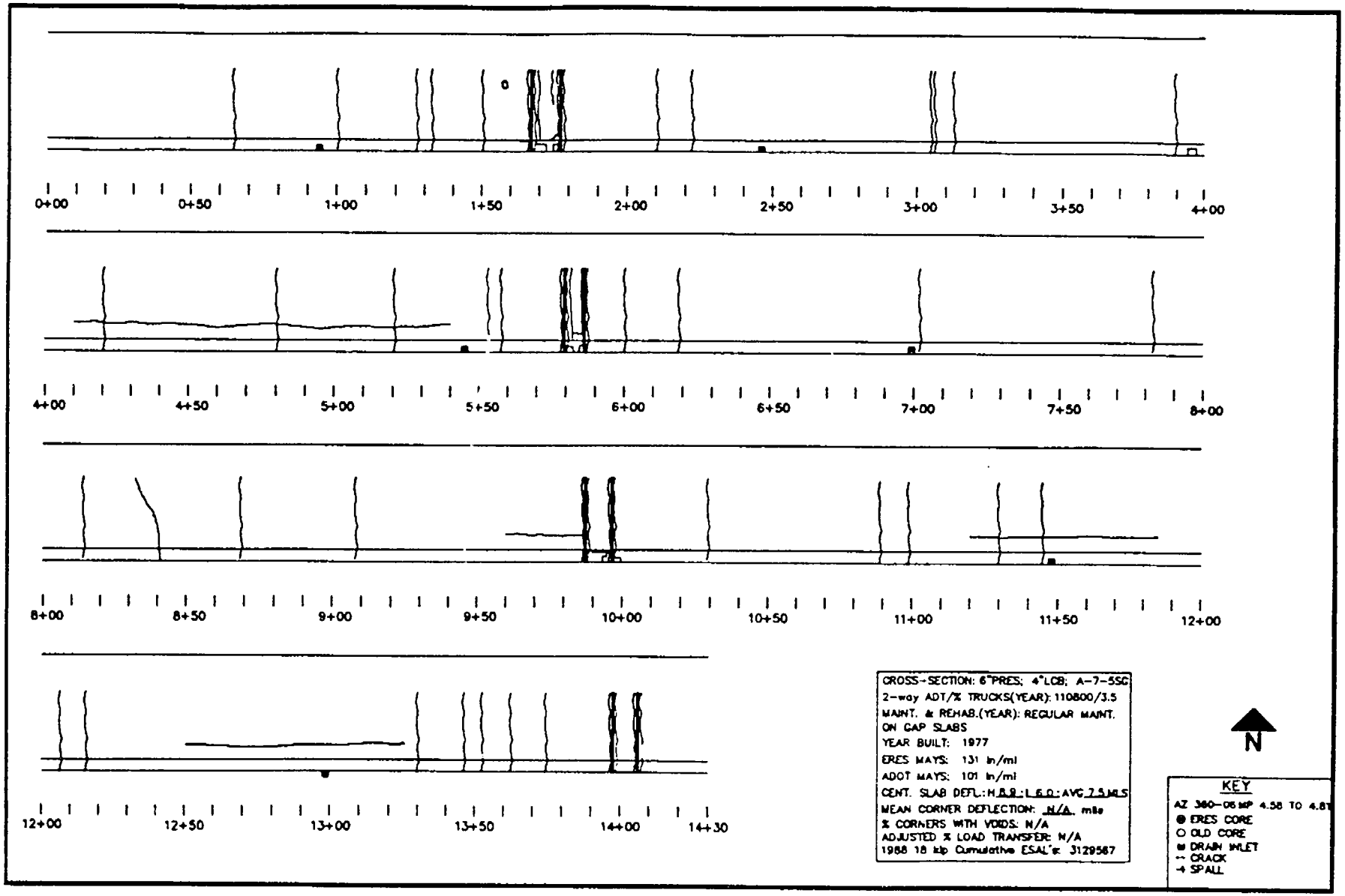


Figure B-6. Project strip map for AZ 360-06.

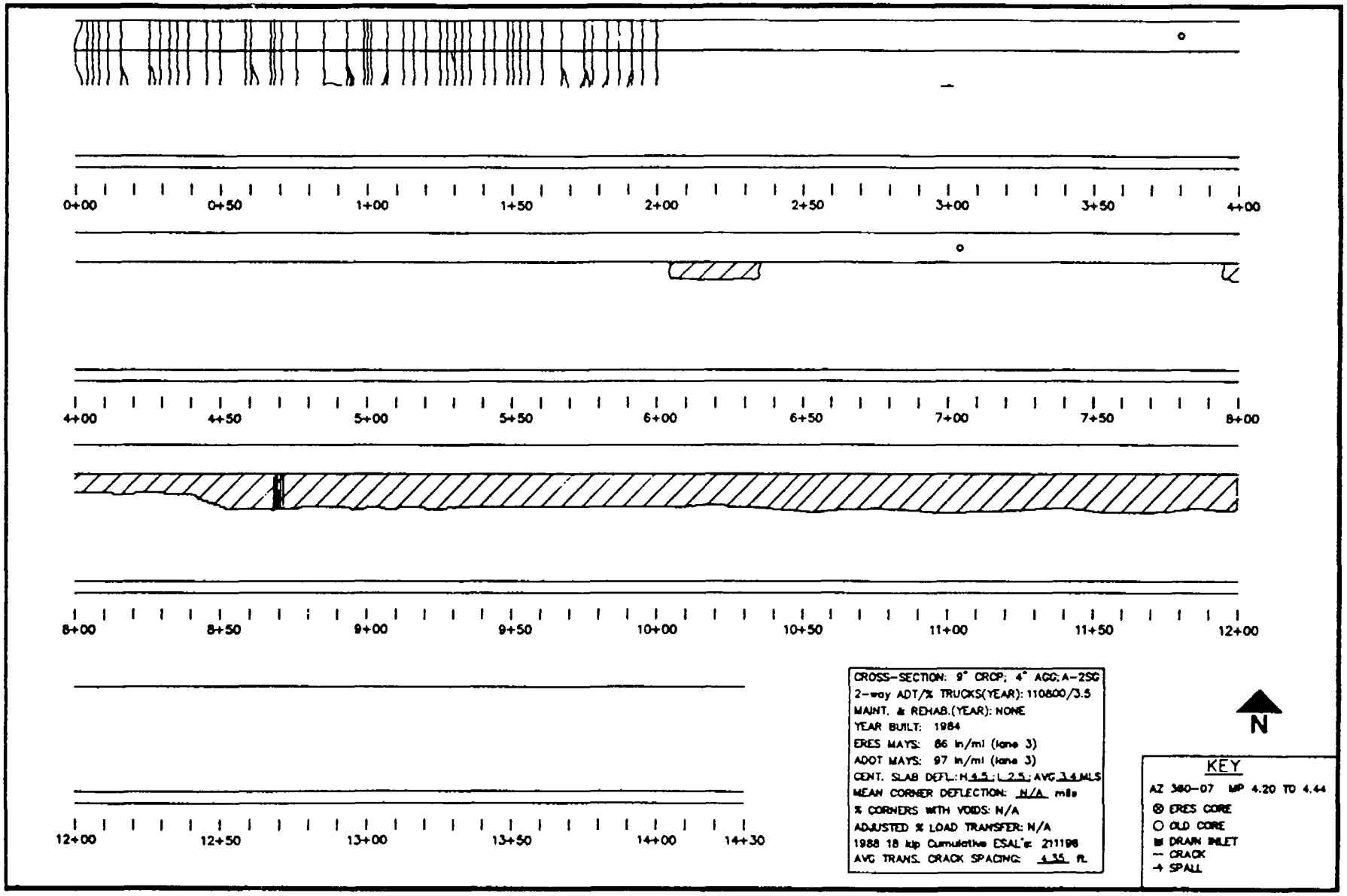


Figure B-7. Project strip map for AZ 360-07.

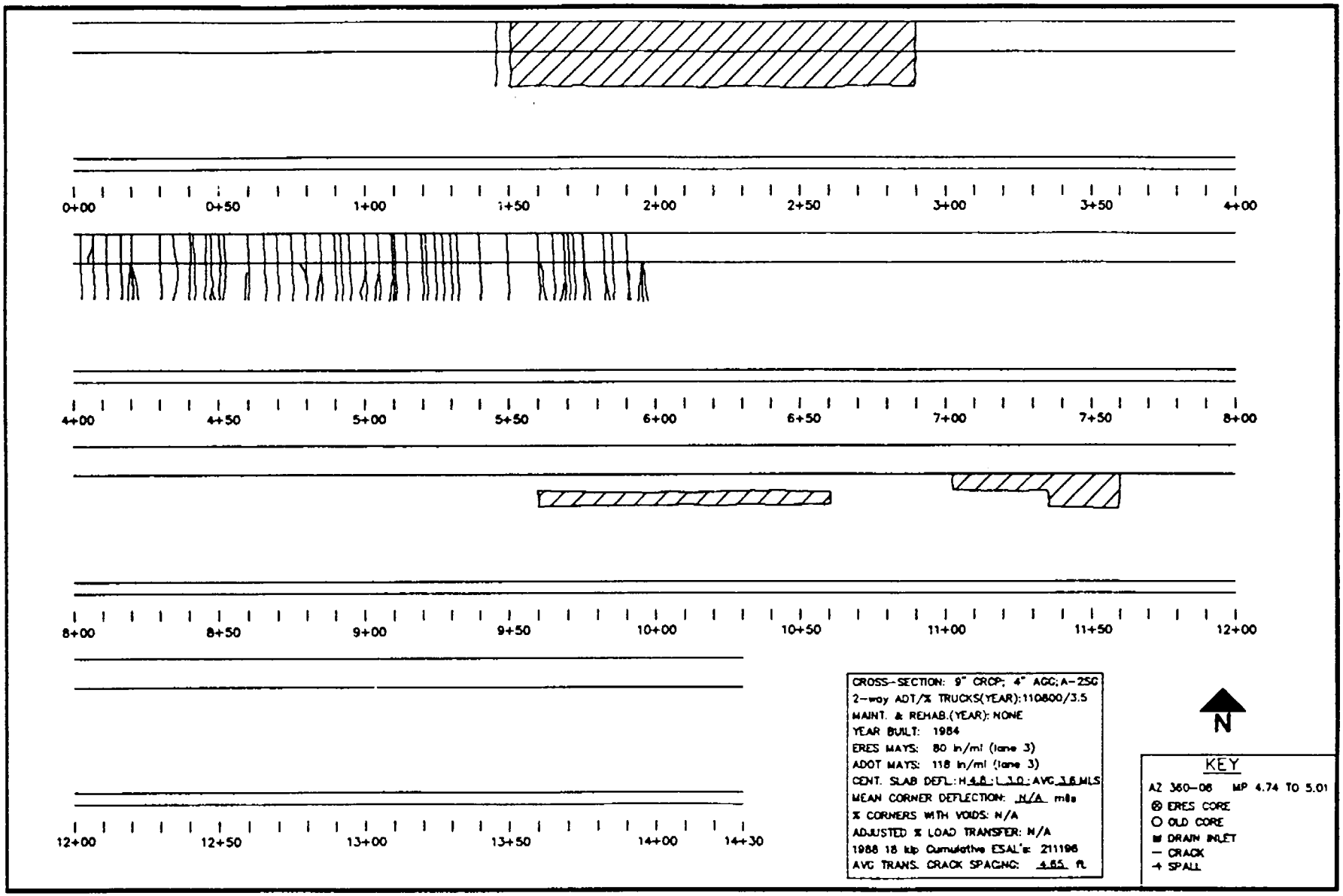


Figure B-8. Project strip map for AZ 360-08.

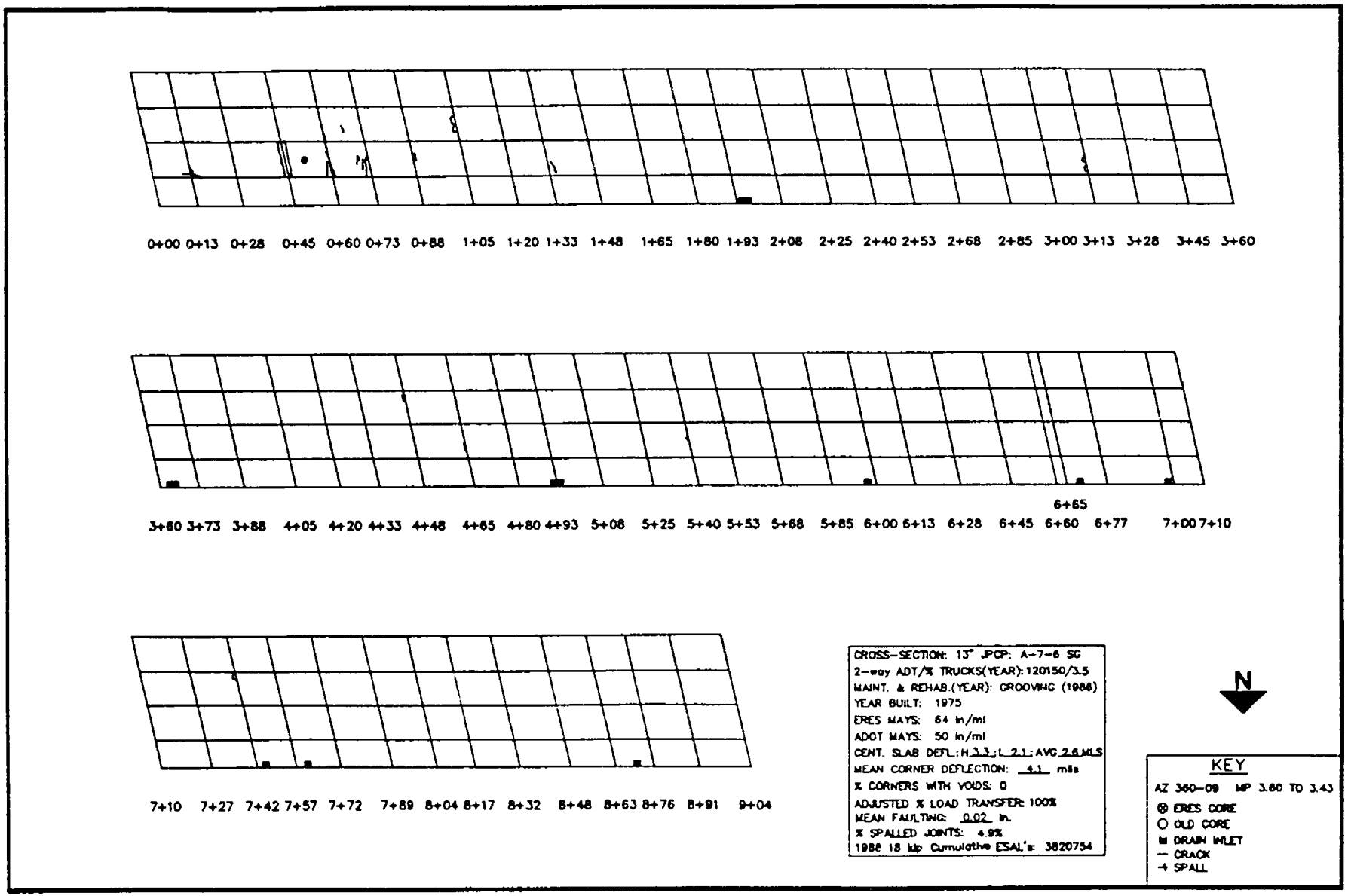


Figure B-9. Project strip map for AZ 360-09.

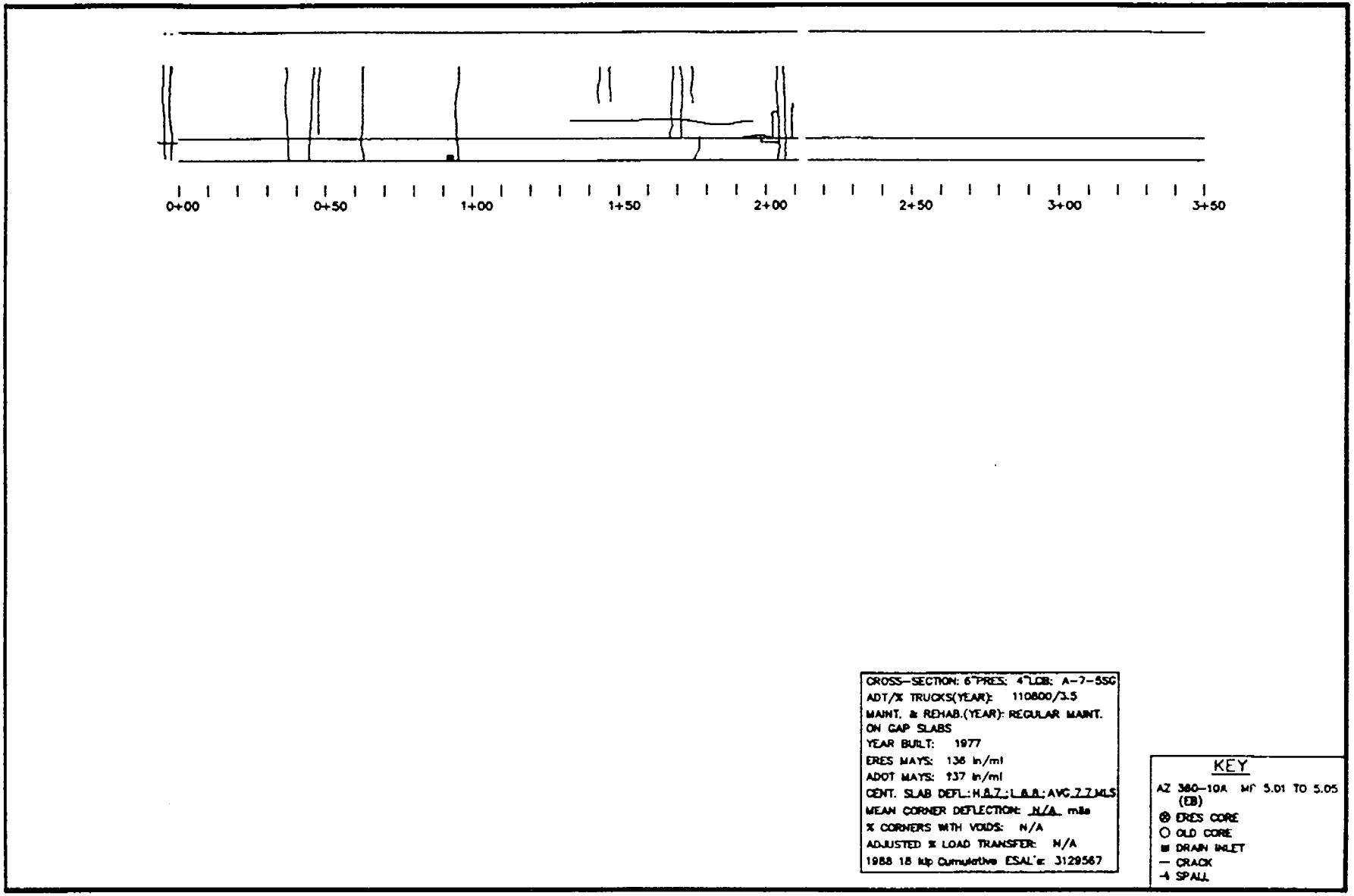


Figure B-10. Project strip map for AZ 360-10A.

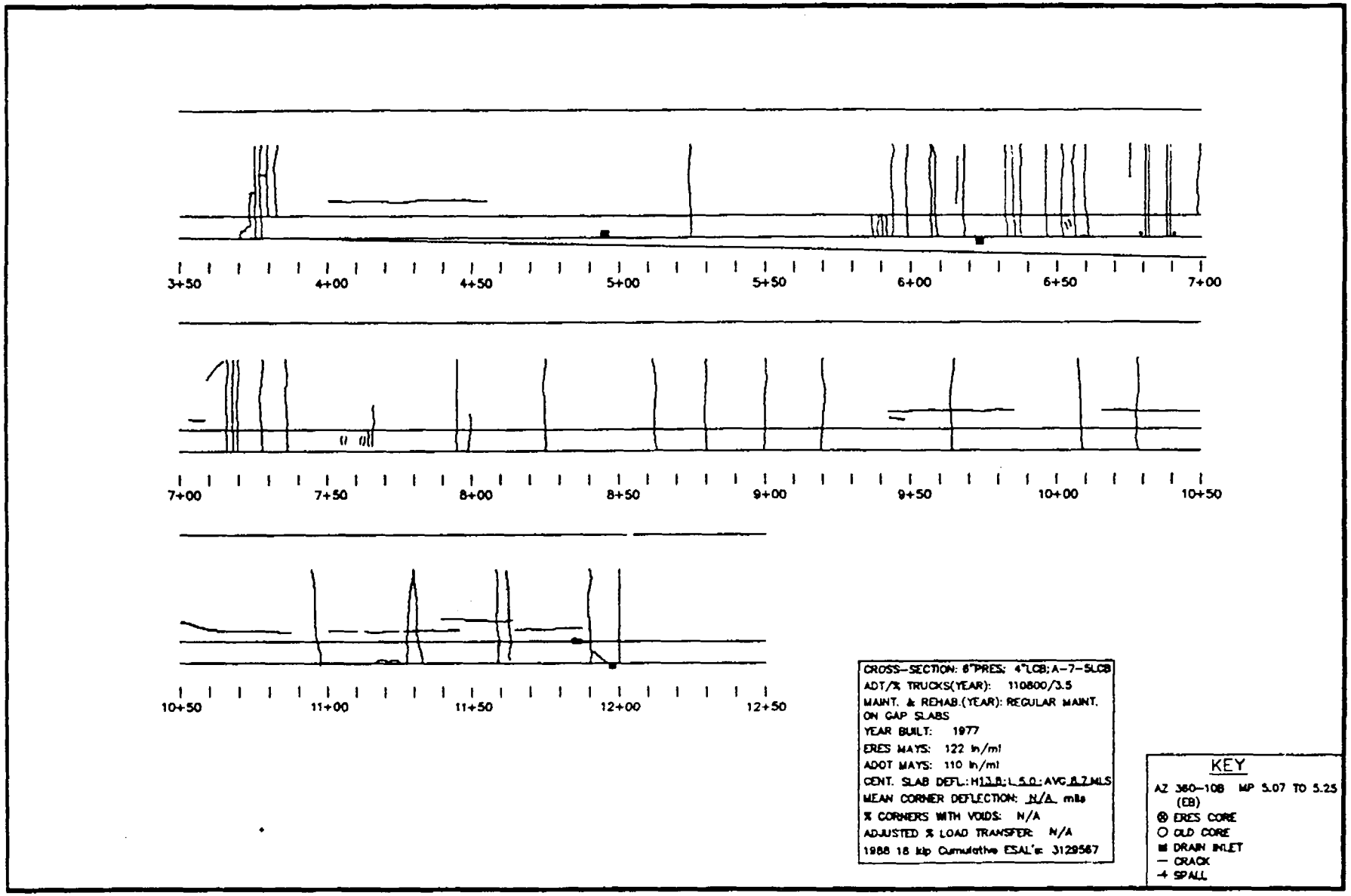


Figure B-11. Project strip map for AZ 360-10B.

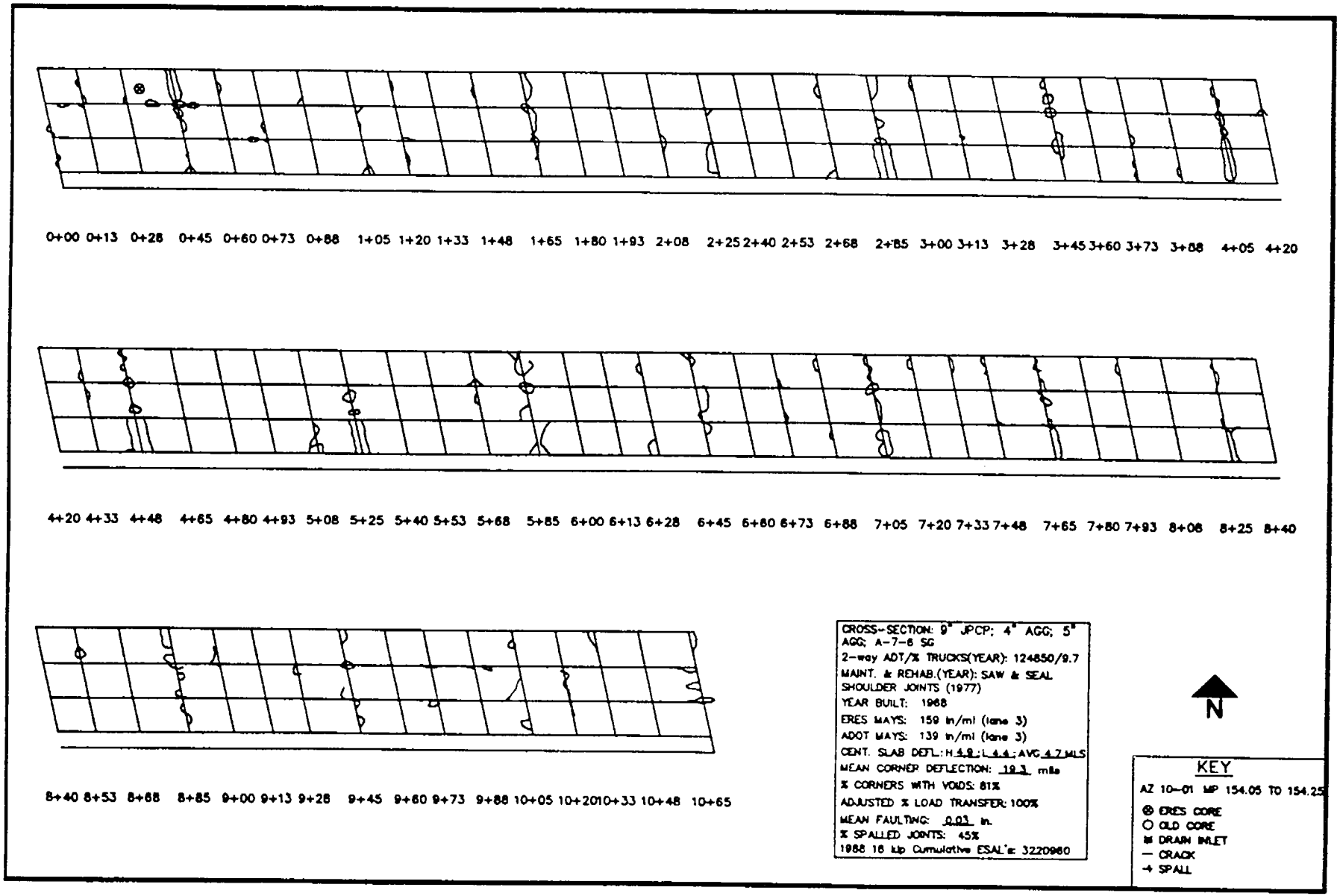


Figure B-12. Project strip map for AZ 10-01.

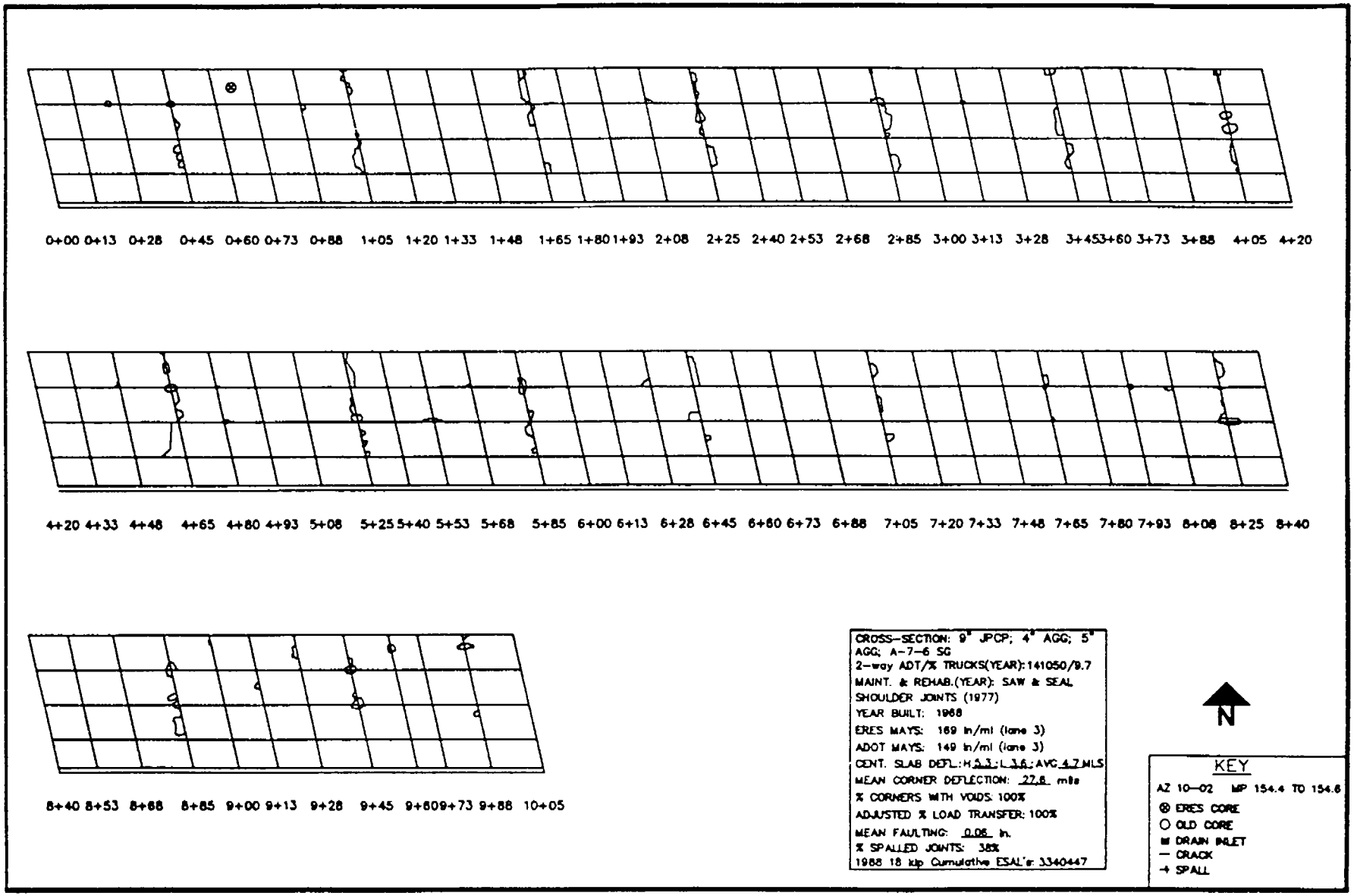


Figure B-13. Project strip map for AZ 10-02.

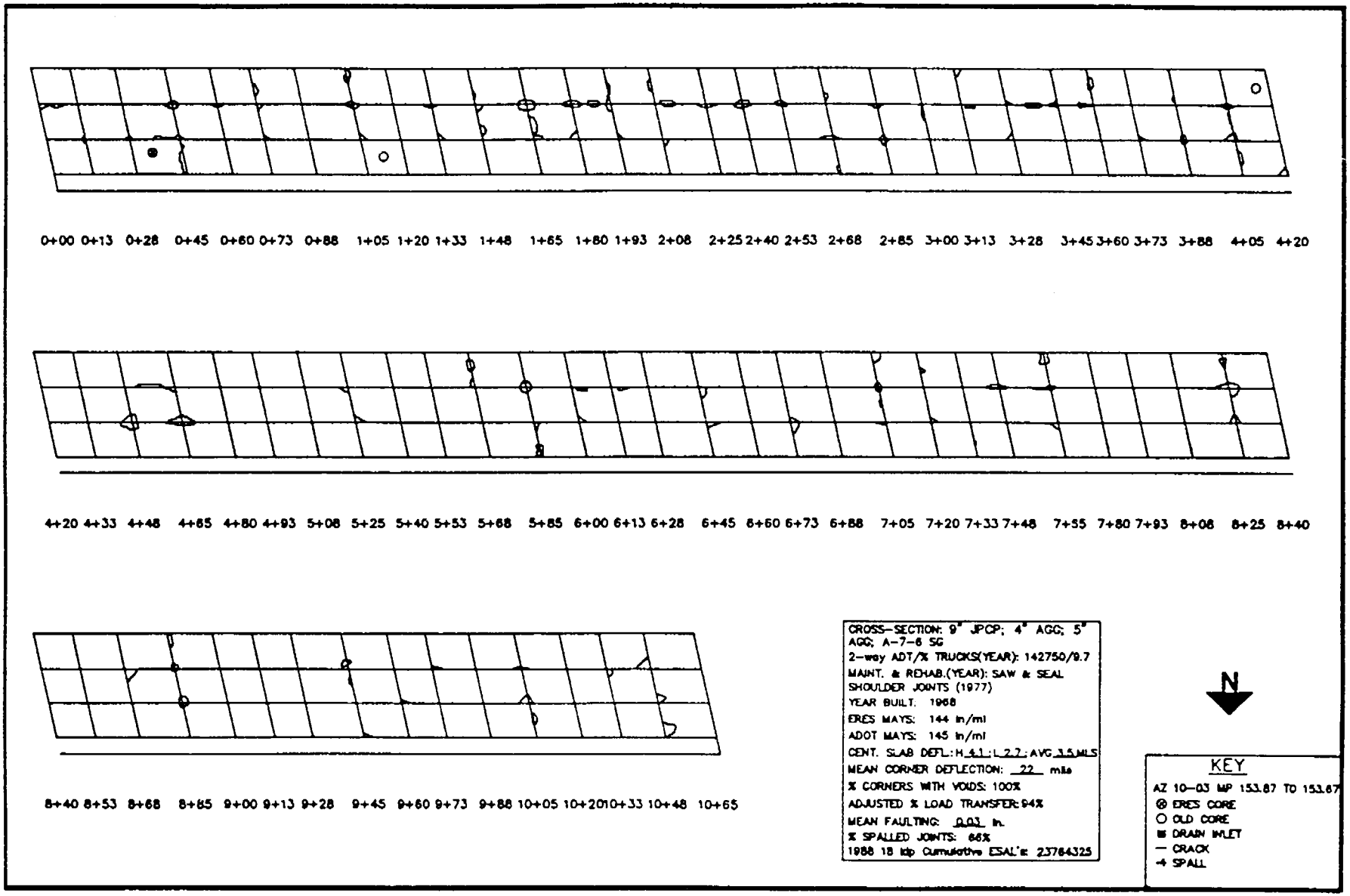


Figure B-14. Project strip map for AZ 10-03.

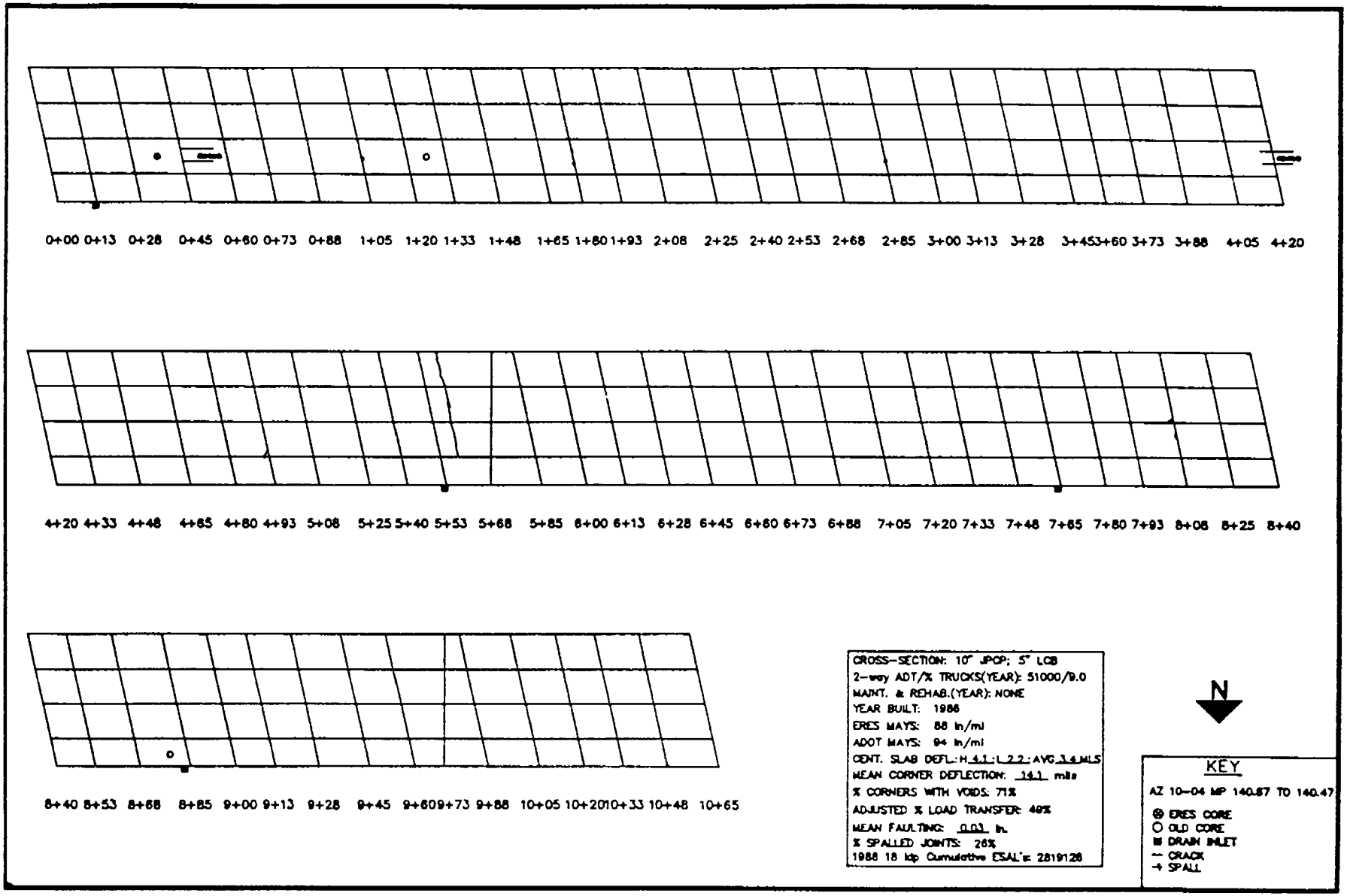


Figure B-15. Project strip map for AZ 10-04.

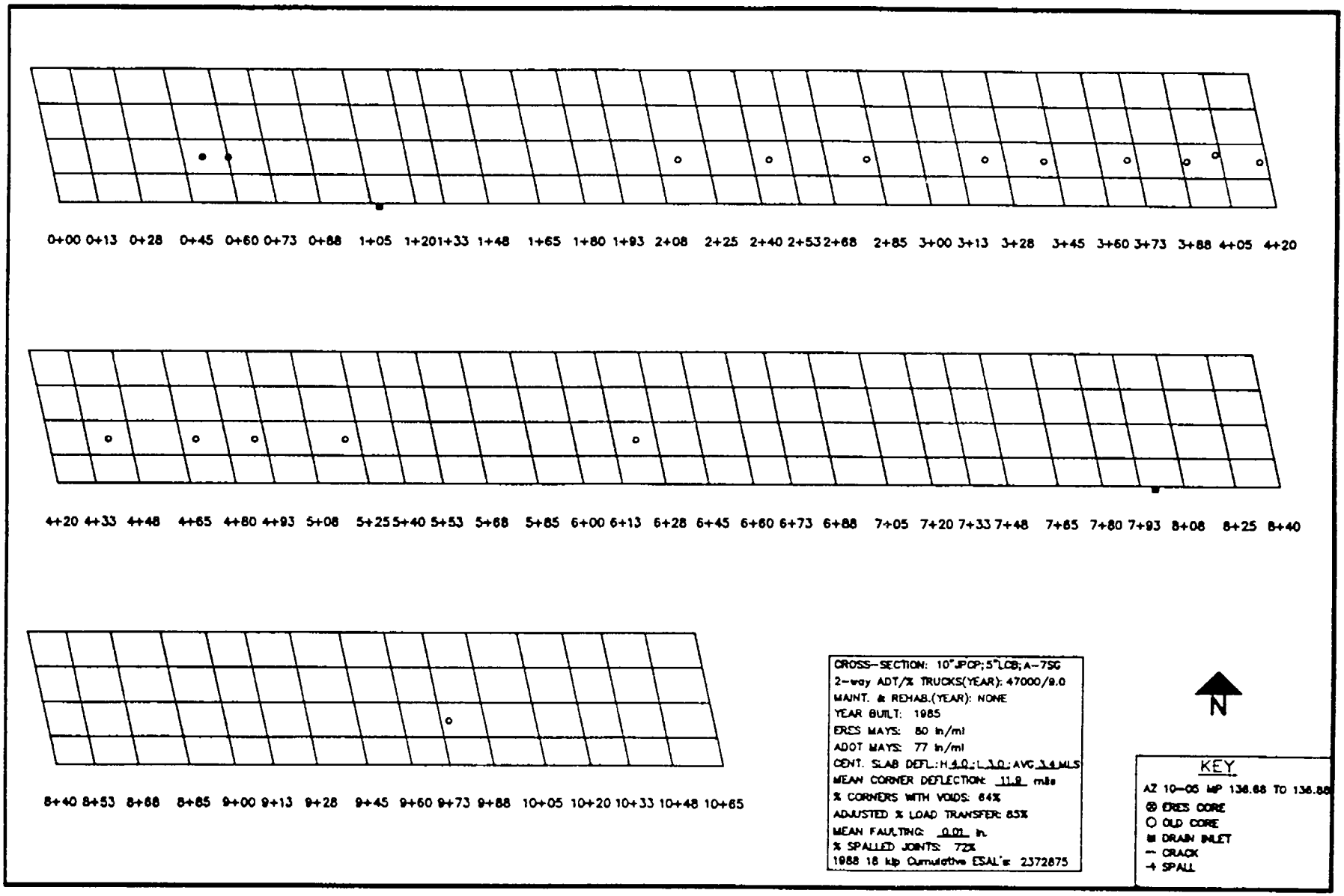


Figure B-16. Project strip map for AZ 10-05.

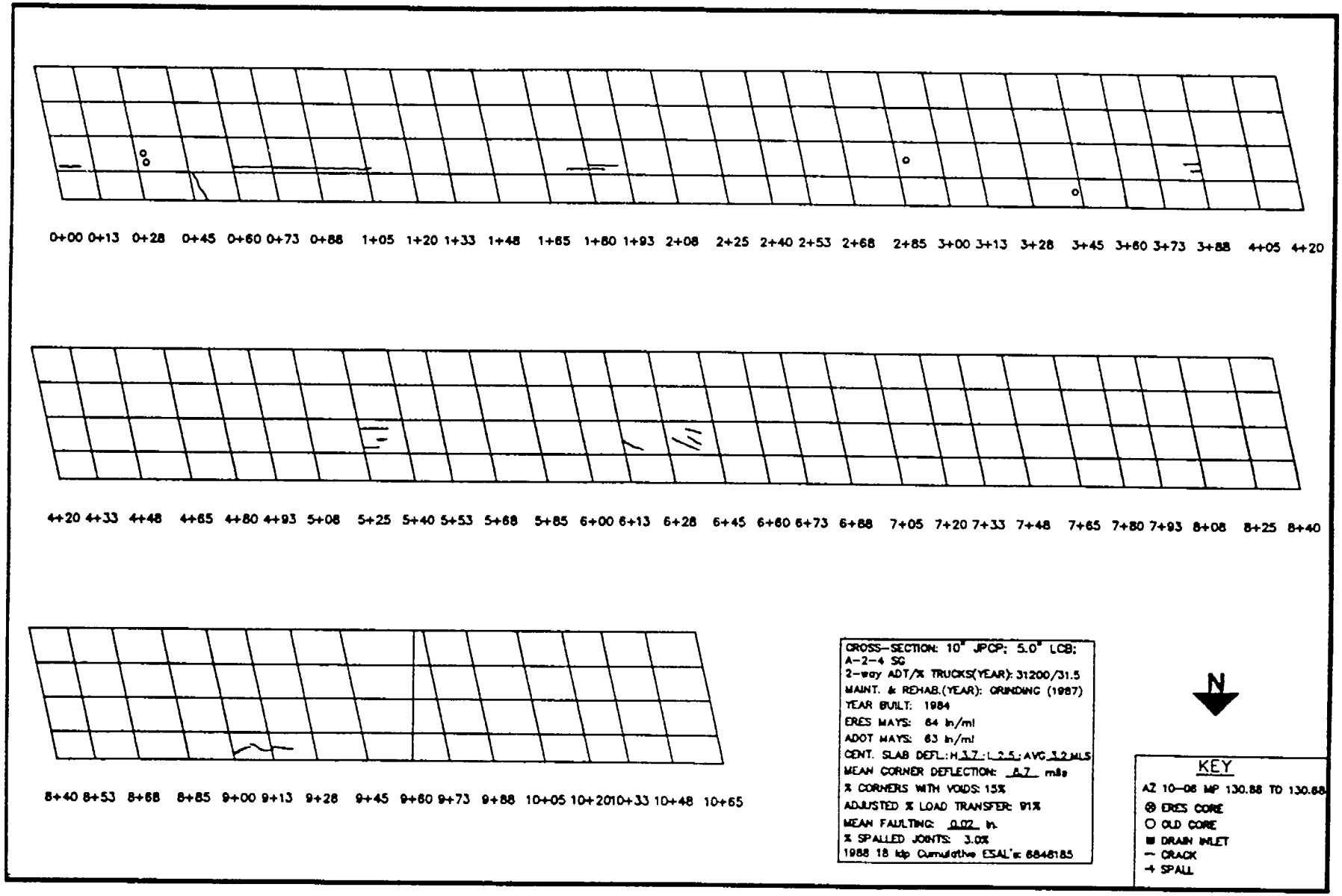


Figure B-17. Project strip map for AZ 10-06.

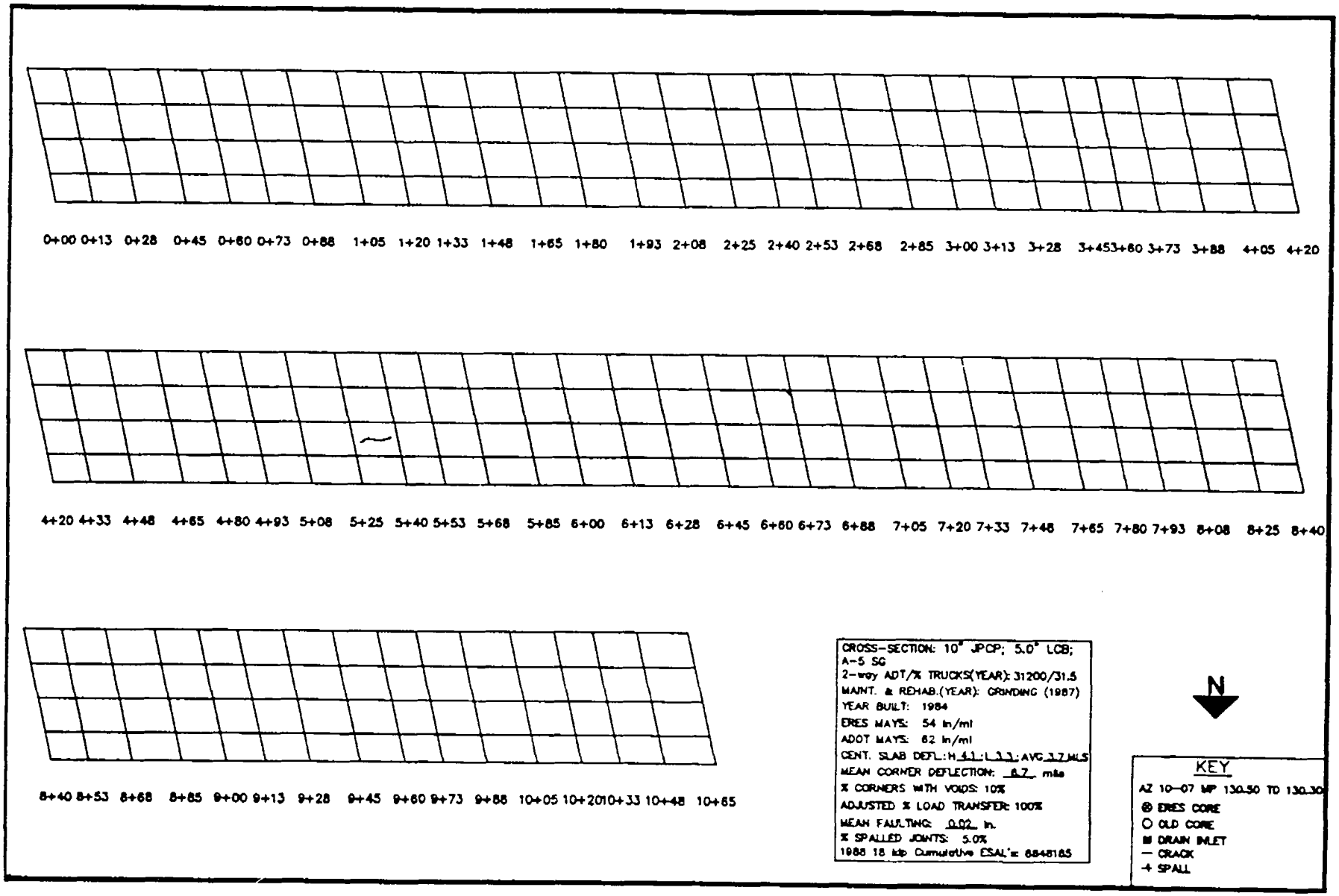


Figure B-18. Project strip map for AZ 10-07.

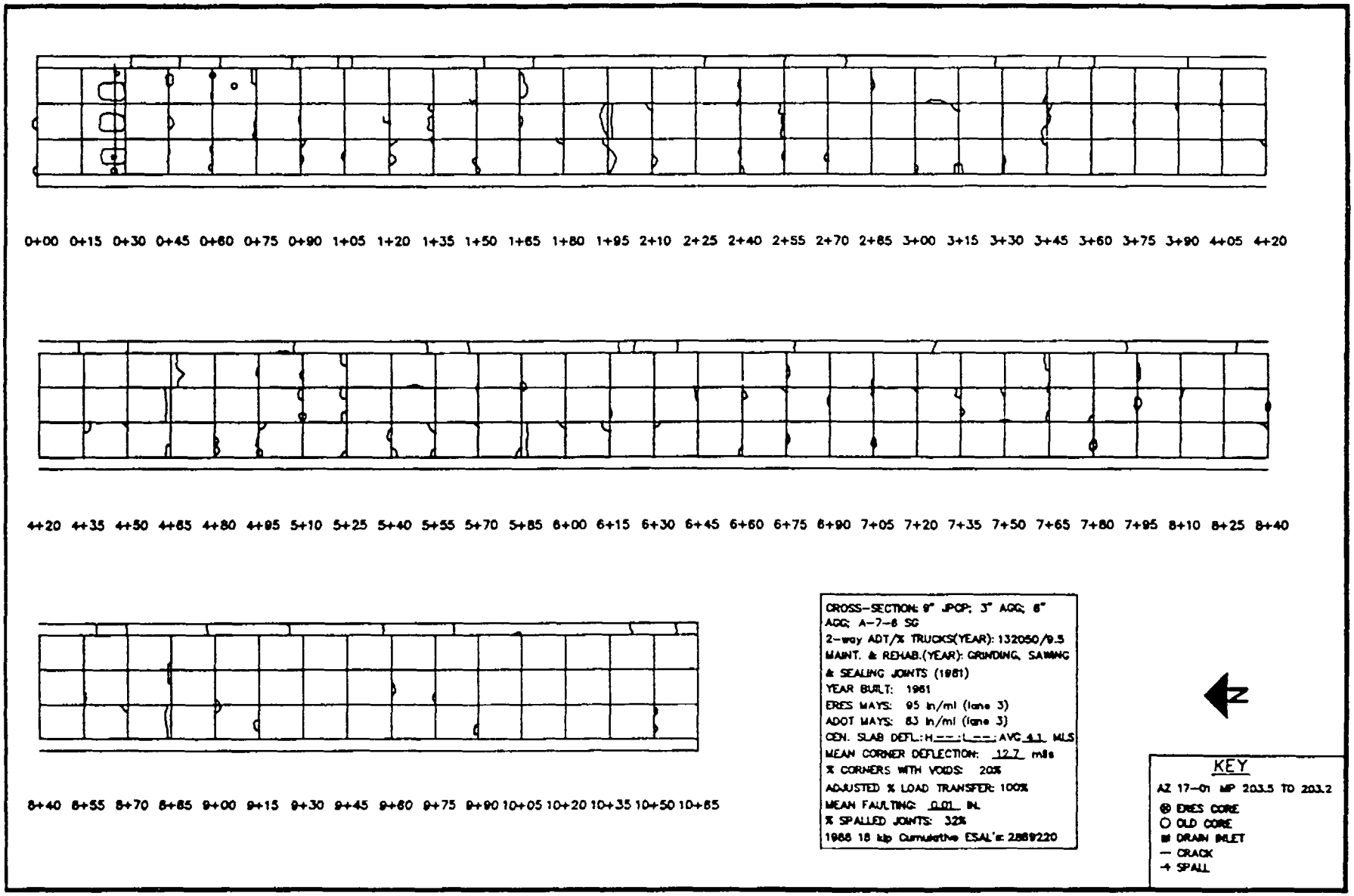


Figure B-19. Project strip map for AZ 17-01.

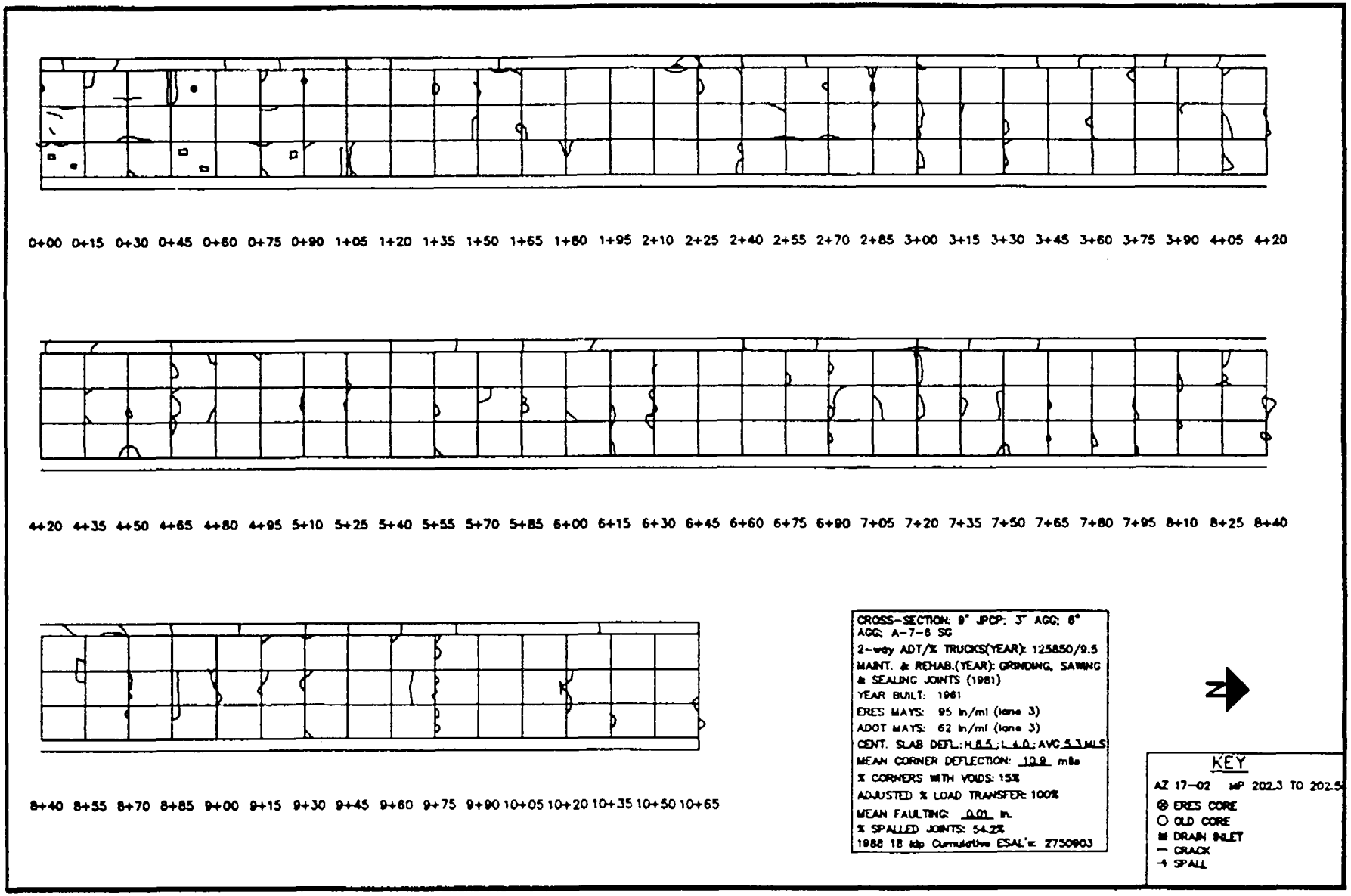


Figure B-20. Project strip map for AZ 17-02.

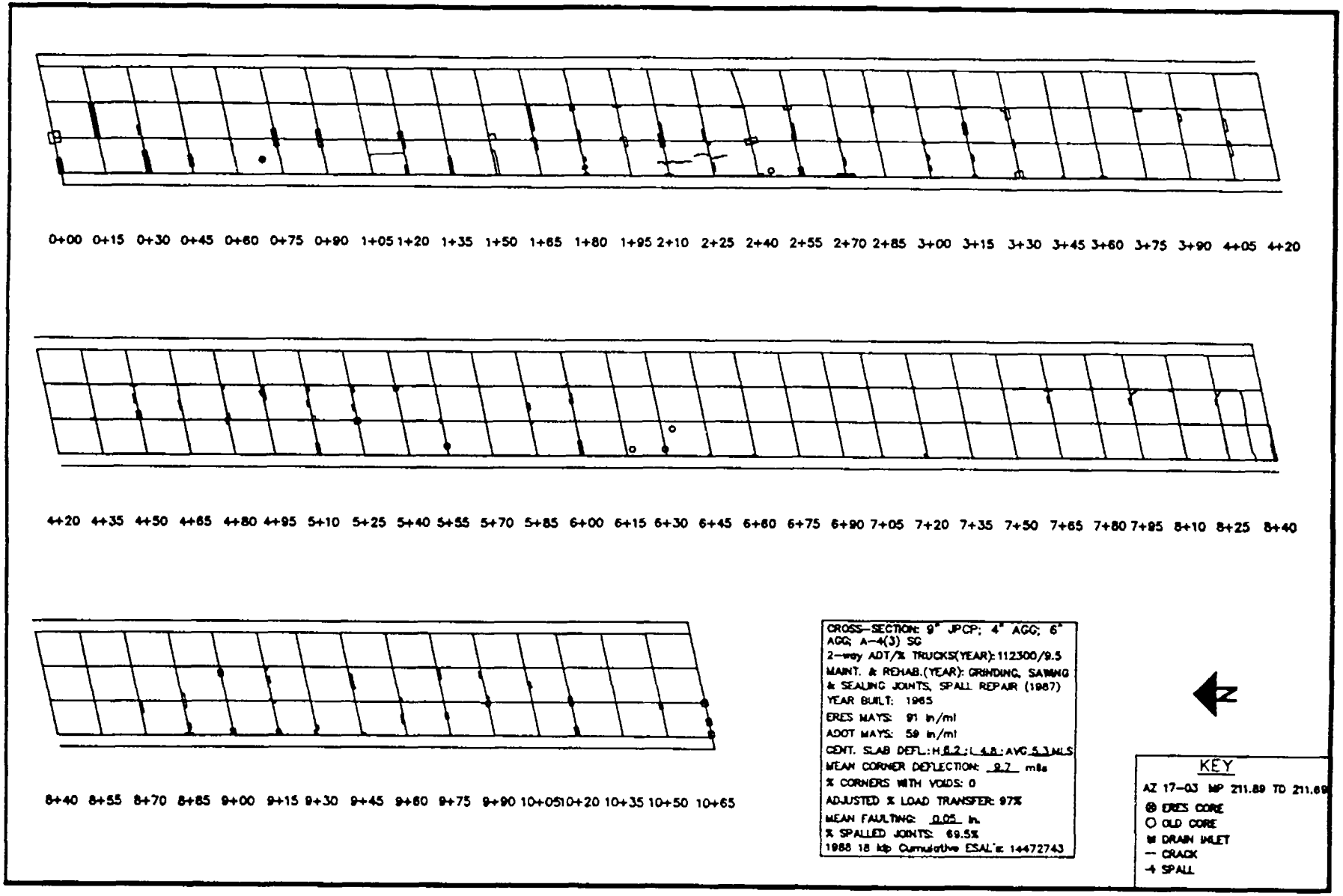


Figure B-21. Project strip map for AZ 17-03.

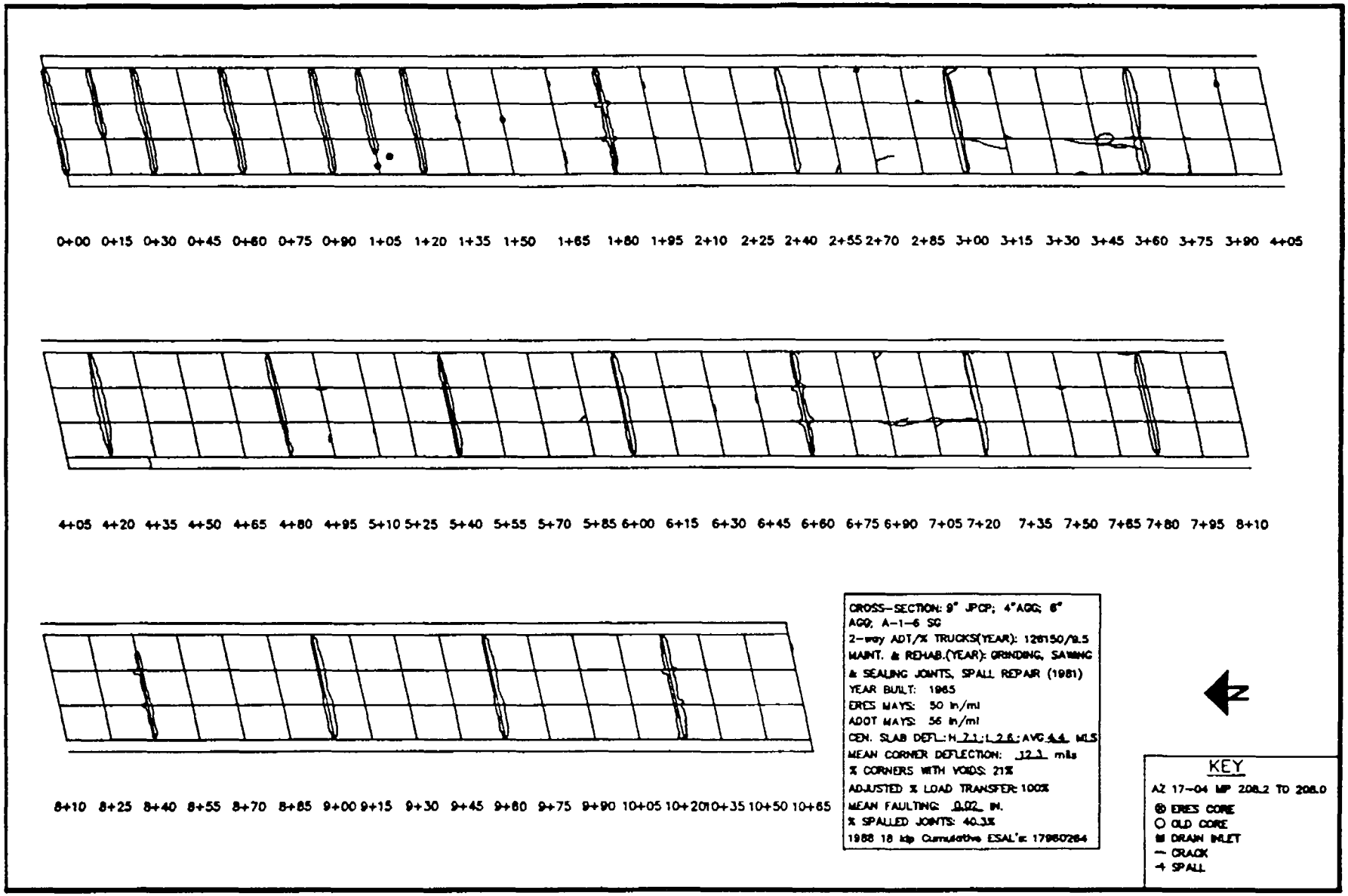


Figure B-22. Project strip map for AZ 17-04.

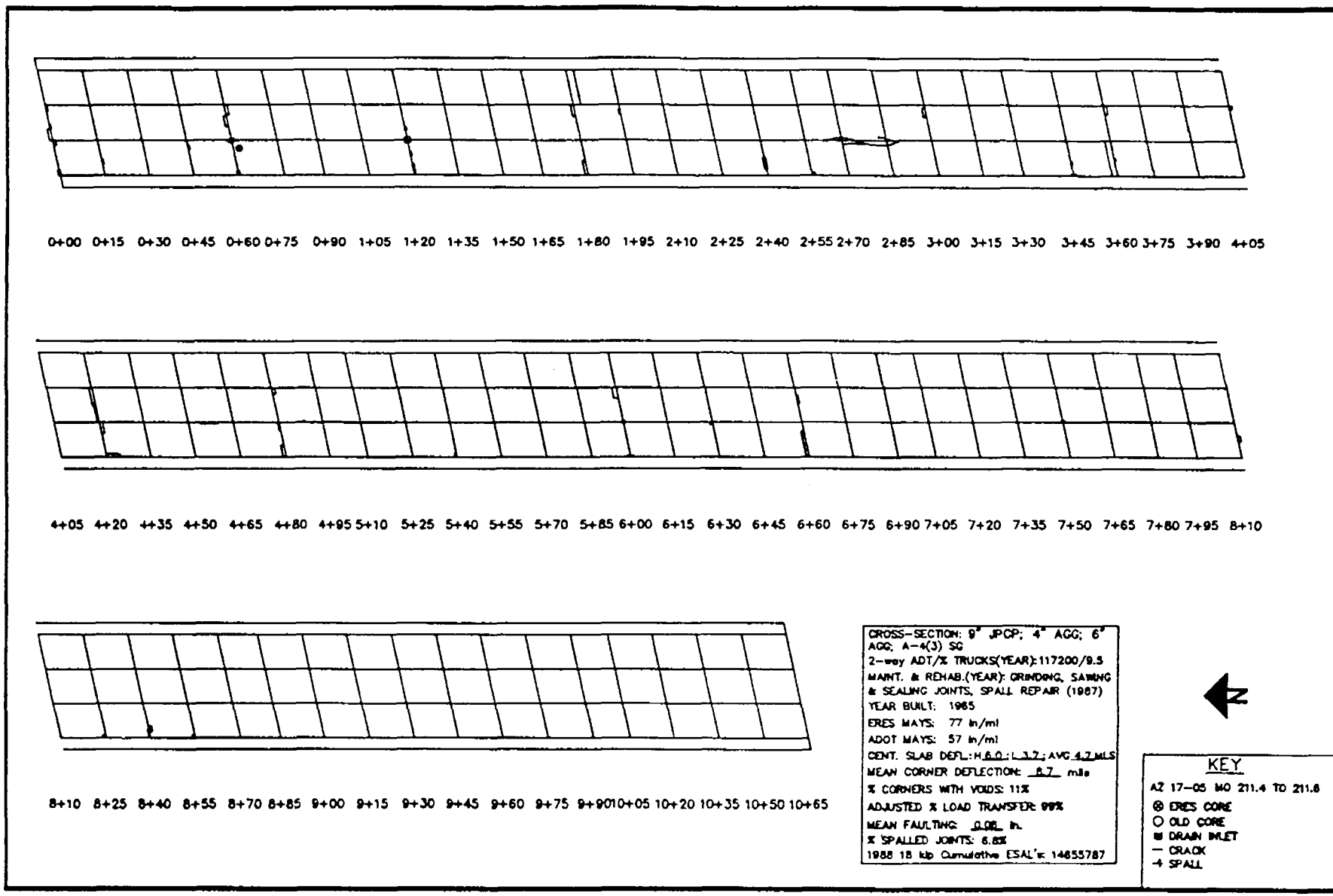


Figure B-23. Project strip map for AZ 17-05.

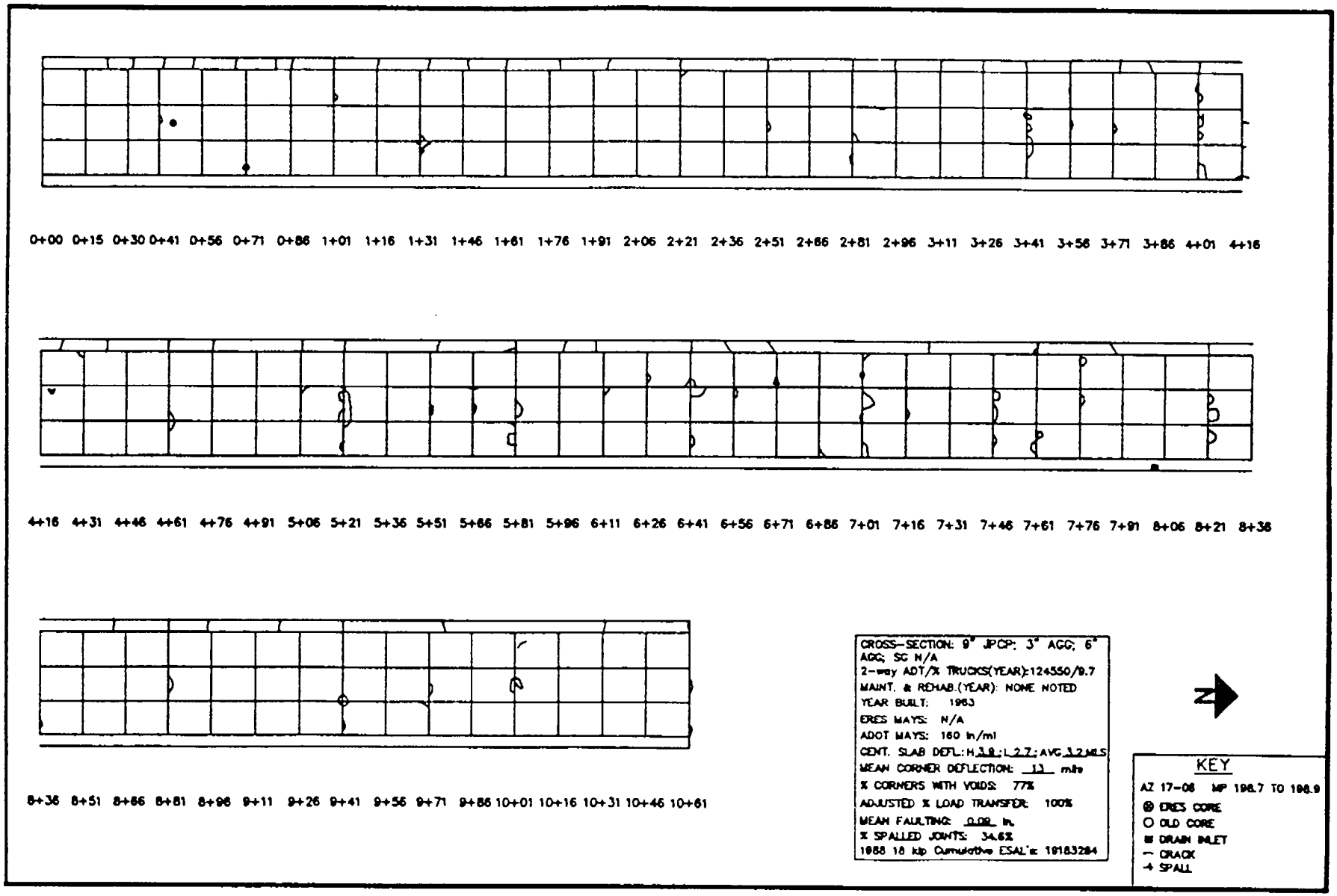


Figure B-24. Project strip map for AZ 17-06.

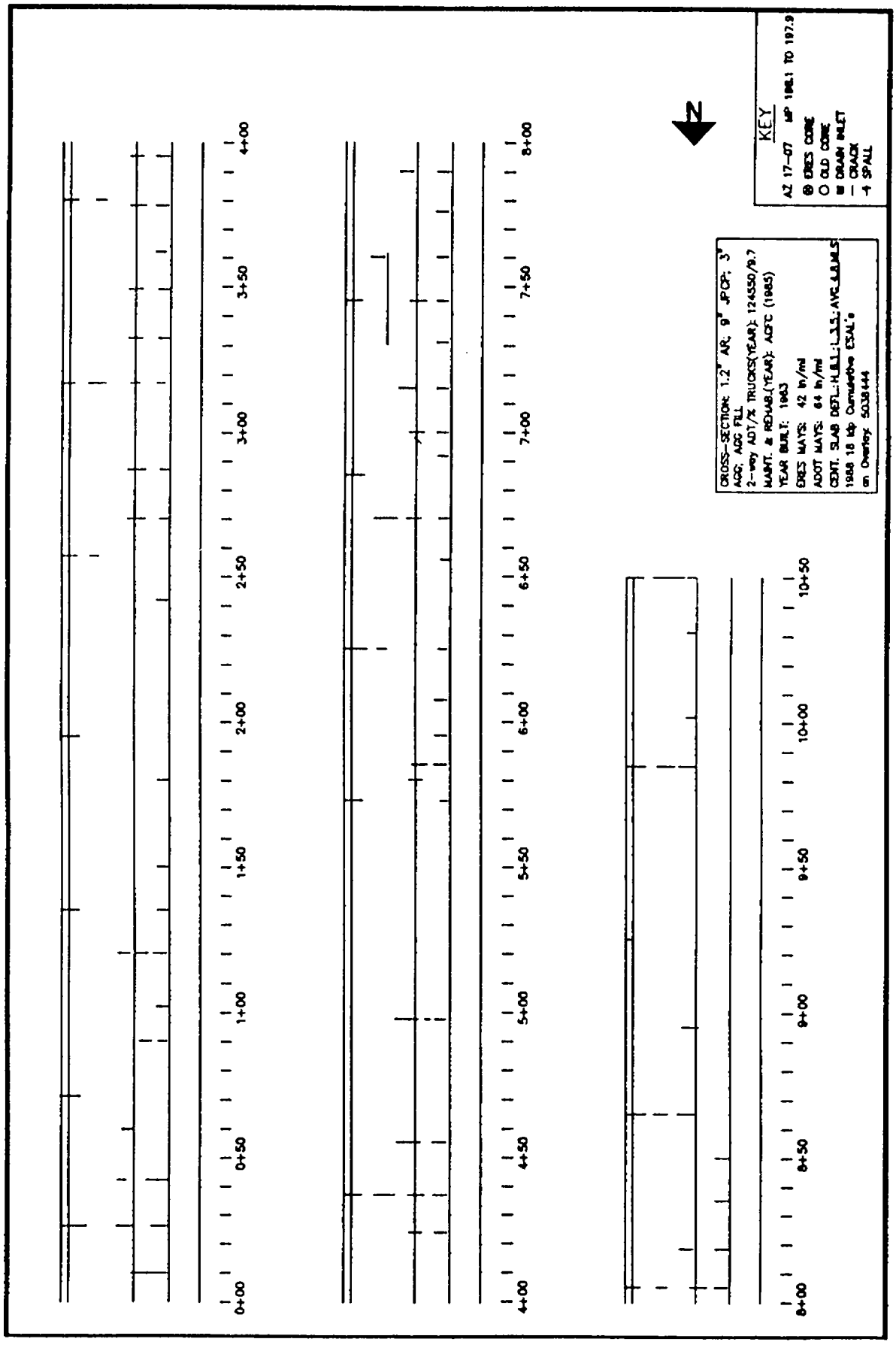


Figure B-25. Project strip map for AZ 17-07.

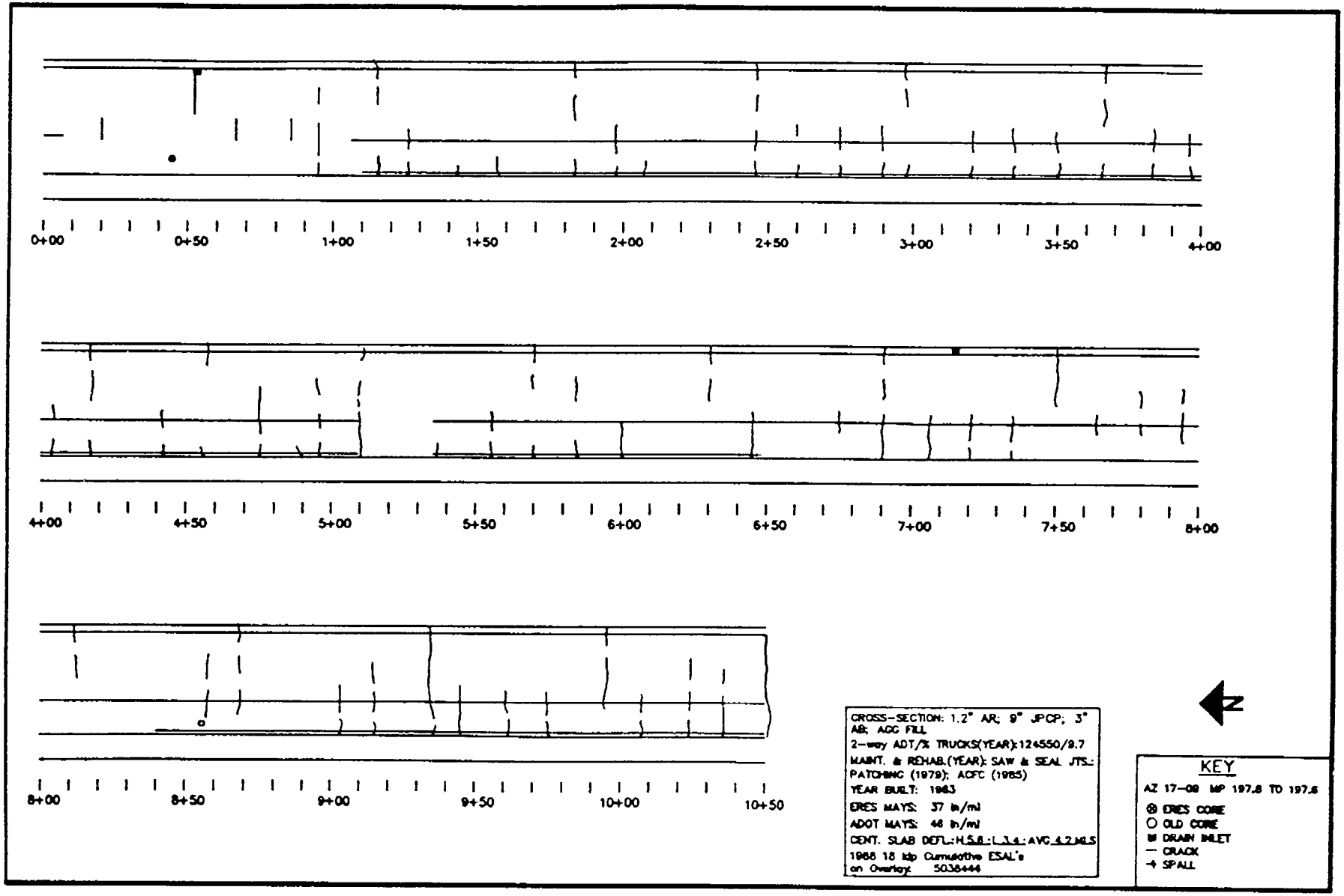


Figure B-26. Project strip map for AZ 17-09.

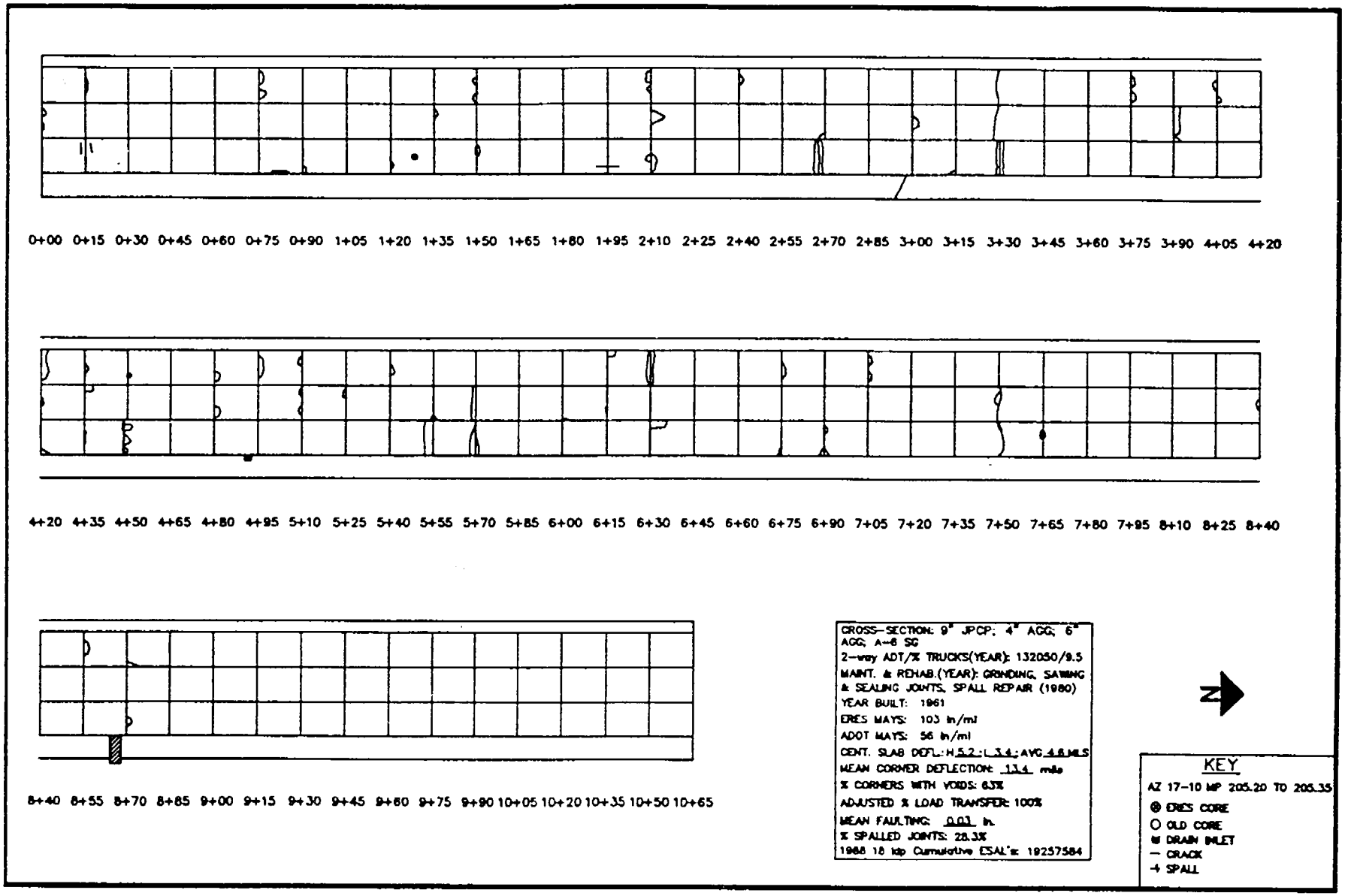


Figure B-27. Project strip map for AZ 17-10.

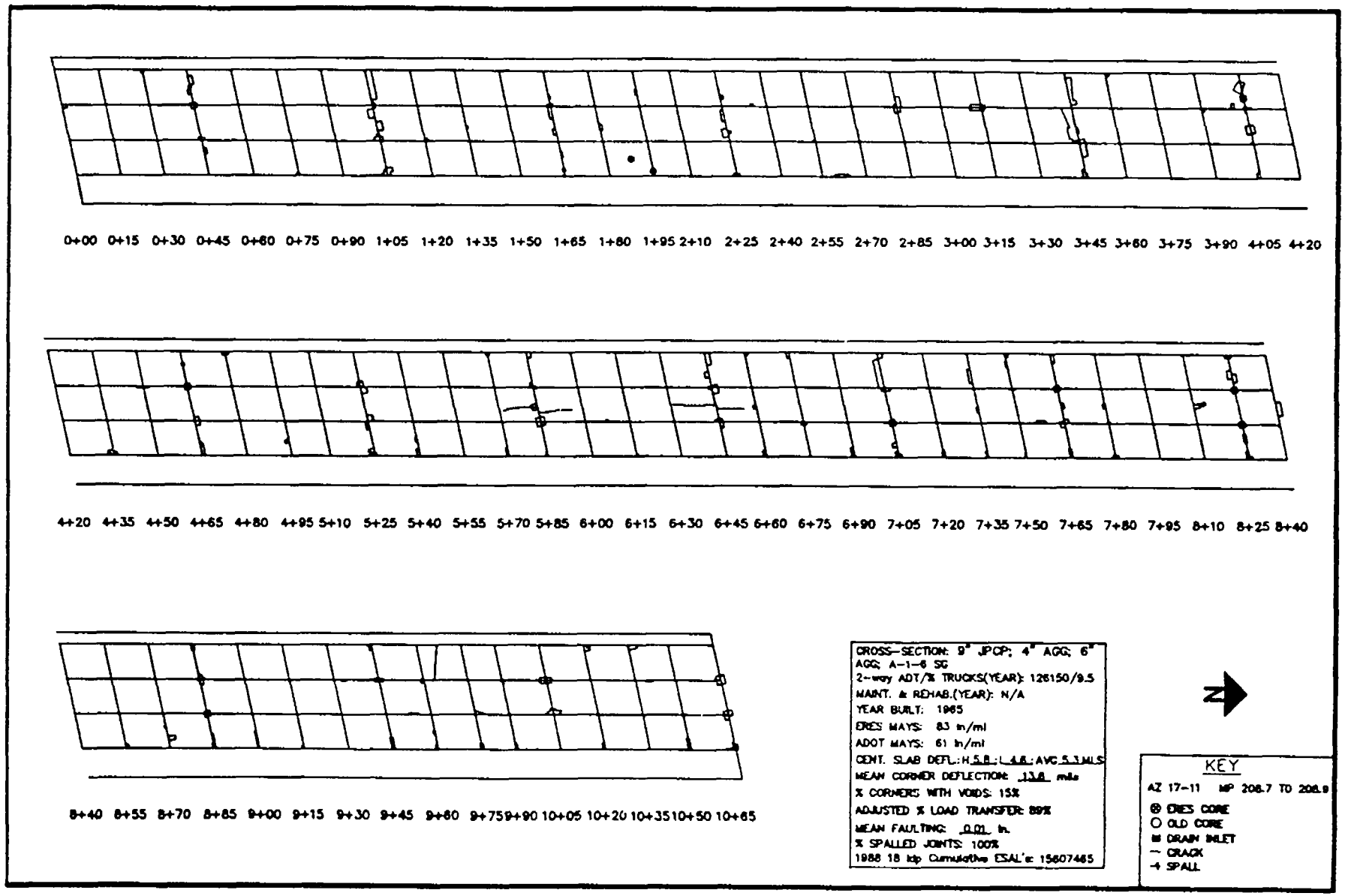


Figure B-28. Project strip map for AZ 17-11.